VINGTOR

CLEAR-COM

COMMUNICATION SYSTEM

whencommunicationiscritical

VINGTOR

VINGTOR is world-renowned for its extensive knowledge in the design, construction, installation and maintenance of integrated marine communication systems. Leveraging our long-term experience serving the maritime industry, we offer an impressive portfolio and provide cutting edge solutions to vessels worldwide under the brand name of VINGTOR®. The VINGTOR brand underpins our reputation as a supplier of the most flexible, reliable and advanced communication systems available today.

MEETING YOUR REGULATORY REQUIREMENTS

All VINGTOR products that form a part of critical communication have been tested according to IEC 60945, IEC 60533 standards, and comply with SOLAS regulations and codes relevant to on-board communication systems. Our systems are delivered in accordance with the rules of all major classification societies.

FOR ALL YOUR SALES & AFTER SERVICE REQUIREMENTS

VINGTOR is a specialist provider of spare parts, repairs, maintenance contracts and refit solutions. Responsibility and availability are our guidelines and customer support and service a first priority.

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ANALOG PARTYLINE INTERCOM SYSTEMS

Clear-Com Encore™

Highly Intuitive and Reliable

For Group Communications and Collaborations

Clear-Com®
AN HME COMPANY

PRODUCT FAMILY OVERVIEW

From main stations to remote stations, wall-mounted speaker stations to wired beltpacks, Clear-Com Encore is the most complete set of two-wire intercom systems for reliable group communications. The systems were designed to withstand rugged usage in fast-paced, demanding and high intensity applications. Clear-Com Encore is highly compatible with other Clear-Com or third-party products in order to address growing communications needs.

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MAIN/REMOTE STATIONS

CS-702 Portable Main Station

The CS-702 is a portable main station with a power supply and a versatile intercom monitoring system. It supports up to 40 beltpacks or 10 speaker stations on two channels. CS-702 accepts mic or line-level audio line level program input with an interrupt switch to override program.

MS-702 Rack-Mount Main Station

The compact, feature-laden, 1RU intercom main station supports up to 40 RS-701 beltpacks, 10 speaker stations or 12 headset stations on two channels. Other features include channel A-B linking, line level program input, Remote Mic Kill switch, and external relay circuit.

MS-704 Rack-Mount Main Station

The 2RU four-channel main station offers programmable front-panel buttons. High-capacity, fail-safe power supply supports up to 40 RS-701 beltpacks, 10 speaker stations or 12 headset stations. Other features include three IFB channels, line level program input, announce button/relay, channel-linking button and Remote Mic Kill switch.

SB-704 Switchboard Main Station

SB-704 includes all of the features of the MS-704, with a 4 x 10 assignment matrix in place of the internal speaker (external speaker required). The 2RU station features a 10-position slide switch matrix that allows assignment of any of the 10 intercom lines to any of the four intercom channels, an isolated separate partyline, or an off position. Line level program input.

RM-702 Remote Station

The 1RU two-channel station is powered by the intercom line. Operators can talk and/or listen on either or both channels. The station accepts line-level audio program input with both channels programmable for interrupt. Microphone limiting and speaker “dipping” circuit allow greater output before feedback.

RM-704 Remote Station

The 2RU remote station provides four independent intercom channels with programmable front-panel buttons for versatility. The station offers separate volume controls for each channel, four separate audio program inputs, and separate line level program input. Powered by the intercom line, the system also provides three IFB channels for talent cuing and announce button/relay for paging.

WIRED RS-700 SERIES BELTPACKS

RS-702

RS-701

RS-703

The RS-700 Series beltpacks feature state-of-the-art performance and exceptional audio clarity for partyline communications in small- to mid-size applications. Offering a highly durable and reliable design, the beltpacks are ideal for harsh, repetitive daily use and provide a very comfortable fit. The beltpacks also feature easy-to-select audio and key options with DIP switch settings for Electret or Dynamic headset mics, headphone minimum level adjustment, call with talk operation, latch or non-latch keying, low or high headphone output and LED off modes. The beltpacks have volume controls as well as talk and call buttons that are guarded against accidental operation.

RS-701

The RS-701 is a single-channel standard beltpack. Four-pin male headset connector and three-pin female/male loop through intercom line connectors.

RS-703

The RS-703 is a two-channel/three-pin dual listen monaural beltpack with four-pin male headset connector. Three-pin female/male loop through intercom line connectors. Requires a TWC-701 TW adaptor module.

RS-702

The RS-702 is a two-channel standard dual listen monaural beltpack with four-pin male headset connector. Six-pin female/male loop through intercom line connectors. Requires YC-36 adapter to connect with standard three-pin cabling.

USER STATIONS

SPEAKER STATIONS

KB-701 Single-Channel Station

The KB-701 remote speaker station connects to a single channel of partyline intercom and operates in half-duplex mode. It features both an integral speaker and a flushmount electret microphone with mic limiter and a push-to-talk button.

KB-702/KB-702GM Two-Channel Station

The KB-702 remote speaker station permits the user to select between two channels of partyline communications, with the ability to talk and/or listen on the selected channel. The user can listen via the integral speaker, a headset or telephone-style handset and can talk via a headset mic, a telephone handset, or a push-to-talk microphone on the KB-702GM version.

V-Box Portable Enclosure for KB Stations

The V-Box permits either angled or vertical portable/desktop mounting of the KB-701, KB-702, and KB-702GM speaker stations. Both male and female 3-pin XLR connectors are on the side panel. The rugged metal and wood construction provides an attractive, durable enclosure.

HEADSET STATIONS

HB-702 Two-Channel Station

The HB-702 is a selectable two-channel wall or console-mounted headset station. The station includes microprocessor-controlled logic and switching, with a momentary/latching talk button and visual call signaling.

HB-704 Four-Channel Station

The HB-704 provides the same features as the HB-702, but can access four intercom channels.

ANNOUNCER CONSOLE

AB-120 Announcer Console

The AB-120 On-Air Announcer Console is the ultimate broadcast-quality tool for announcers and commentators. The AB-120 integrates all of the inputs, outputs, and controls necessary at the announce position, including intercom “Talkback,” IFB receiver, and a silent “Mute” button that provides noise-free cough and “mic on/off” switching. Extremely flexible, the console can be easily configured for practically any combination of audio sources, microphones, headsets, or intercom systems to ensure quality audio and powerful communications.

HEADSETS

CC-300

Single-ear headset features high ambient-noise attenuation headphones and a hyper-cardioid dynamic microphone that provide high quality audio. The headset has a flexible design and a soft-ear pad to offer superior comfort. Able to rotate 300-degrees, the microphone boom acts as an on/off switch for quick microphone muting.

Impedance mic/earpiece: 200/400 Ohms
Mic type: Dynamic

CC-400

Double-ear headset features high ambient-noise attenuation headphones and a hyper-cardioid dyanamic microphone that provide high quality audio. The headset has a flexible design and soft-ear pads to offer superior comfort. Able to rotate 300-degrees, the microphone boom acts as an on/off switch for quick microphone muting.

Impedance mic/earpiece: 200/200 Ohms
Mic type: Dynamic

CC-40 and CC-60

The single- or double-ear general-purpose intercom headsets with excellent noise attenuation include a straight 5.5 foot cord (1.67 meter) with 4-pin female XLR connector.

Impedance mic/earpiece: 200/400 Ohms
Mic type: Dynamic

CC-010A IFB Ear Set

The IFB ear set includes audio driver, coiled acoustic eartube with clothing clip, 5ft (1.5m) cable with 1/8" (3.5mm) straight mini-jack connector.

CC-26K-X4

The CC-26K is a single-ear, ultra-lightweight (1.3oz) headset with a dynamic, noise-cancelling mic element on a flexible boom. It includes a straight 5.5 foot (1.67 meter) cord with 4-pin female XLR connector.

Impedance mic/earpiece: 200/400 Ohms
Mic type: Dynamic

CC-27

The CC-27 is a single-ear wrap around headset with a noise cancellation microphone. 4-pin XLR female 150Hz to 10kHz frequency response.

Impedance mic/earpiece: 200/90 Ohms
Mic type: Dynamic

Que-Com Partyline System

Que-Com is a high-performance, economical partyline communications system. This system features a wide frequency response and high audio output. The intercom provides an individual volume control and mic on/off switch for each station with a permanently attached, rugged, noise-isolating headset. The headset is connected to a rugged, all-metal diecast beltpack with belt clip. System interconnects with a standard mic cable. Que-Com is compatible with all Clear-Com systems. The PK-7 is a suitable power supply option.

INTERFACES

TW-47 Two-Way Radio/Walkie-Talkie Interface

Compatible with both Clear-Com and RTS,® the TW-47 connects virtually any set of walkie-talkies to anyone on the wired partyline intercom; simply use one walkie-talkie as a base station. The base station radio is keyed from the intercom call signal. Extensive RF and EMI isolation prevent interference from entering the intercom system. Separate transmit and receive level controls are provided, along with audio level and transmitter keying indicators. The stand-alone interface is powered by the intercom line.

TWC-701 Cable Adaptor

The TWC-701 two-channel cable adapter combines two intercom channels onto a single 3-pin XLR cable. All two-wire (TW) beltpack models require this adapter to support a two channel connection to a multi-channel Clear-Com system. The TWC-701 module can drive up to 15 RS-703 beltpacks.

IF4W4 Four-Wire Interface

The IF4W4 four-channel interface connects Clear-Com to TV cameras, two-way radios, satellite links, and other communications devices through either headset jacks or four-wire circuits. The IF4W4 has selective partyline capability, and features individual transmit, receive, and null controls as well as transmit level indicators. Switchable mic or line-level output for compatibility. The built-in test jack and test tone provide quick nulling.

EF-701M Interface

The EF-701M interface converts a single channel of standard or TW partyline intercom to four-wire audio, while also converting call signals to RS-422 data (and back). The resulting four-wire audio plus RS-422 data can then be sent to a Clear-Com matrix port, fiber optic converter (modem) or connected to another EF-701M over a twisted-pair cable such as CAT-5E.

TW-12C System Interface

The TW-12C connects one intercom system to another. Optoisolation eliminates hums and buzzes. The interface will compensate for level and impedance differences between systems. TW-12C allows Clear-Com-to-Clear-Com, Clear-Com-to-RTS, and RTS-to-RTS system configurations. The interface is powered by the connected intercom system and translates “call” signals in both directions.

PERIPHERALS

RCS-2700 Programmable Source Assignment Panel

The 2RU RCS-2700 is ideal for medium to large installations where channel assignments to remote stations frequently change. Eight master channel sources can be assigned to any 24 remote station destinations, and additional RCS-2700 units can be connected for up to 15 sources and 72 destinations. It can store 14 presets.

PIC-4704 Program Interrupt Controller

Each IFB controller handles up to four talent receivers. For use with MA-704 and AX-704 IFB Control Panels or intercom stations. This unit contains the circuitry for selecting one of two program sources, sending the program to the IFB channels, and interrupting it via the talent control station. The controller has variable audio program dip-level, monaural or stereo/split-feed outputs, and improved and intuitive user interface. It requires a 6-pin XLR cable for connection to MA-704/AX-704 control panels.

MA-704/AX-704 IFB Control Panel

These console-mount or rack-mount units control “program interrupt” (IFB) to the talent. The MA-704 includes a gooseneck microphone connector, illuminated “All Talent”, and four individual talent push buttons. The AX-704 permits expansion in multiples of four. Both accept the “hot mic out” from a Clear-Com station. An optional CEP-RK rack mount fixture is available for the MA-704 and AX-704 panels.

TR-50 Talent Receiver

The TR-50 is an amplified single-channel talent beltpack with volume control. It connects to the program interrupt controller with a standard microphone cable. It has a mini earphone jack output and includes a talent earset. It should be paired with the CC-010A IFB ear set.

PRC-2 UHF Wireless IFB Receiver

The IFB receiver has default UHF frequencies that can be set without power or a transmitter signal. Up to five additional frequencies can be stored in scan mode. The design uses +/-20 kHz FM deviation for efficient use of the bandwidth with compandor noise reduction circuitry for an excellent signal to noise ratio. The receiver will drive a wide variety of earbuds, headphones and induction neck loops at substantial levels, with loads from 16 Ohms to 600 Ohms. It should be paired with the CC-010A IFB ear set. Not available for CE countries.

PTX-3 UHF Wireless IFB Transmitter

The wireless IFB transmitter base station has 256 selectable UHF frequencies at 100 kHz increments. Microprocessor control enables easy operation and eliminates transients at turn-on and turn-off. Transmitter can be used as a standalone device or rack mounted with the PRK-2 kit. Not available for CE countries.

POWER SUPPLIES

PS-702 Two-Channel Power Supply

The 1RU PS-702 can deliver 1.2 amps at 30 volts DC to two channels. This is sufficient to power up to 40 beltpacks, 10 speaker stations, or 12 headset stations even under the most demanding conditions. Either channel is capable of supplying up to 1.2 amps. The full current capacity may be divided between the two channels.

PS-704 Four-Channel Power Supply

The 1RU PS-704 is a four-channel power supply that features Clear-Com's "fail-safe" design for maximum reliability. The power supply delivers 1.2 amps at 30 volts, supplying power for one to four channels of intercom. It will support up to 40 beltpacks, 10 speaker stations or 12 headset stations.

PK-7 Lightweight Power Supply

The PK-7 power supply will support up to 30 Que-Com headset stations or five standard RS-700 series belt-packs. It is line and load regulated and short-circuit protected. Power supply fits into a single rack space.

ACCESSORIES

FL-7 Call Signal Flasher
The FL-7 call signal flasher has a new LED design with dimmer. It provides both a visual and audible indication of a call signal on the intercom channel. The front panel mode switch selects flasher, ring or both.

WP-2 Intercom Outlet Wall Plate
The selectable two-channel WP-2 wall plate connects to single-channel beltpacks such as the RS-701. The 3-pin male XLR connector with two-position channel-selector switch allows user to talk on either of two intercom channels.

WP-6 Intercom Outlet Wall Plate
The WP-6 wall plate is used with two-channel beltpacks such as the RS-702. 6-pin male XLR connector connects user with two intercom channels.

HS-6 Telephone-Style Handset
Telephone-style handset with wall/console mount hanger, push-to-talk switch includes a 6-foot coil cord with 4-pin female XLR connector.

SP-3 Line Splitter
The SP-3 line splitter is a one-female-input to three-male-output cable assembly for intercom line splitting.

YC-36 “Y” Adapter
The YC-36 “Y” adapter plugs into the 6-pin male XLR intercom connector on a RS-702 or beltpack. The other end provides two 3-pin female XLR connectors, for separate line connection to channels A and B.

YC-66 6-Pin Line Splitter
The YC-66 is a one 6-pin male XLR connector that splits into two 6-pin female connectors.

PT-7 Hand-Held Mic
The rugged, push-to-talk, hand-held PT-7 microphone with mounting clip includes a 5-foot coil cord with 4-pin female XLR connector.

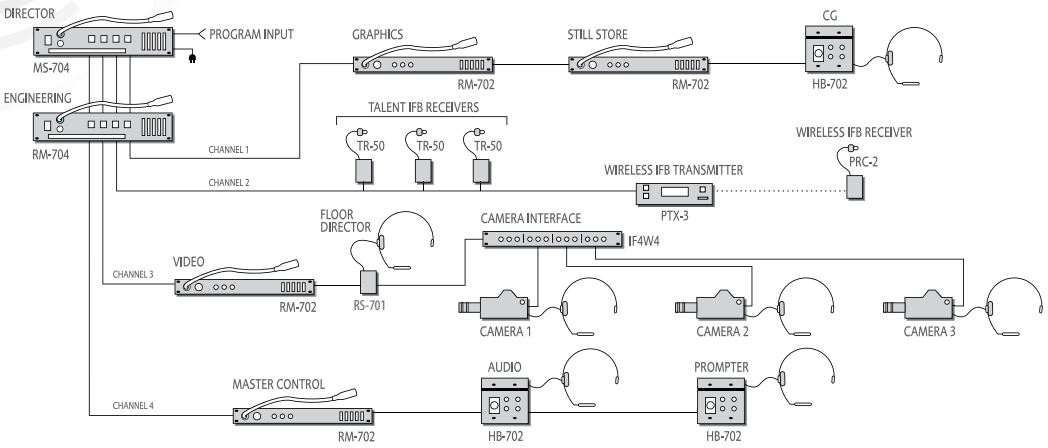
GM-9/GM-18 Gooseneck Mics
The GM-9 (9" length) and GM-18 (18" length) gooseneck microphones feature a gold-plated, threaded, and locking three-conductor quarter-inch phone plug connector. A fitted windscreen is included. The uni-directional electret condenser mic element has a side and rear rejection of greater than 6dB between 100Hz and 10kHz.

GN-250/GN-450 Gooseneck Mics
GN-250-25cm/10in Plug-in gooseneck microphone

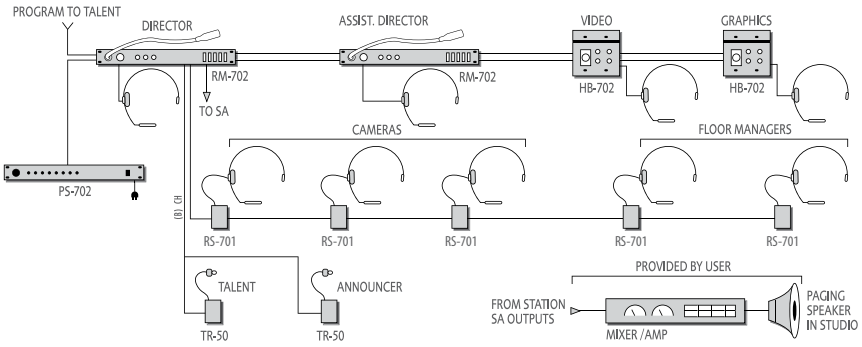
GN-450-45cm/18" Plug-in gooseneck microphone

MT-1 Isolator Circuit Card
The MT-1 electrically isolates the ground, power, and signaling lines when connecting between two partyline intercom systems. Use one card per channel.

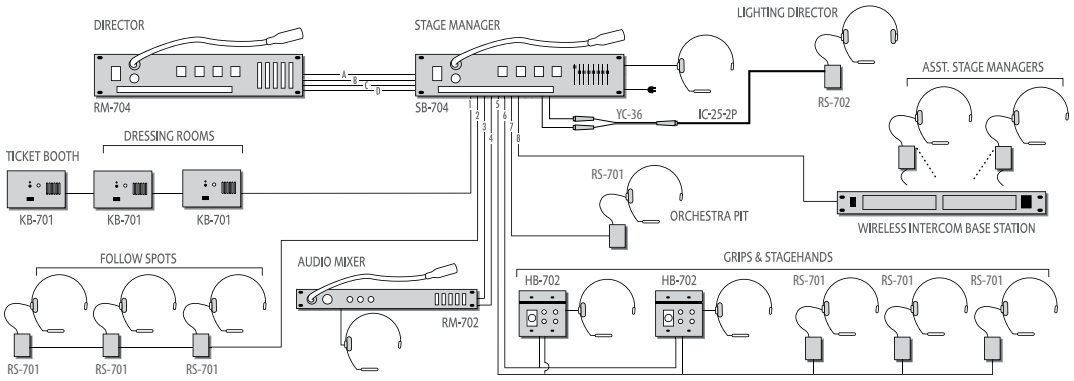
Four-Channel TV News System



Cable/School Television Studio



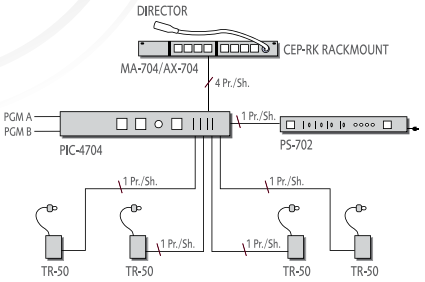
Four-Channel System Using SwitchBoard Main Station



SYSTEM DIAGRAMS

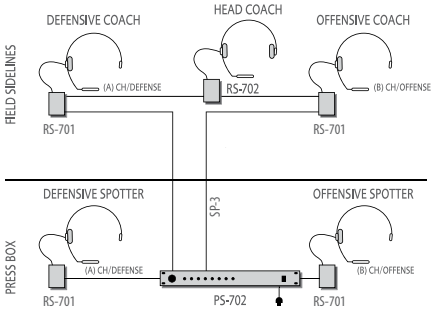
TV BROADCAST STATION

Stand-Alone System, 1 Location, 4 Talent



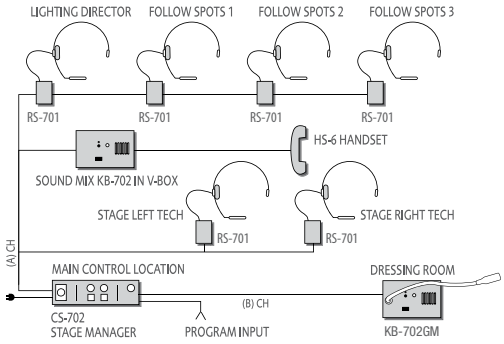
SPORTS PRODUCTION

Coach to Spotter System-Portable

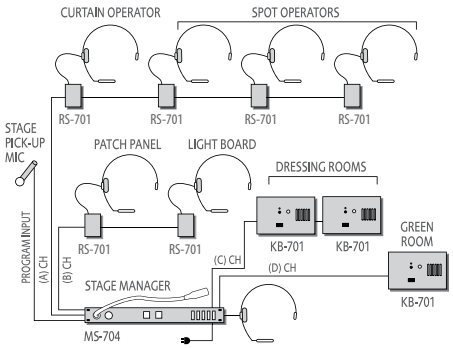


STAGE PRODUCTION

Typical Portable System

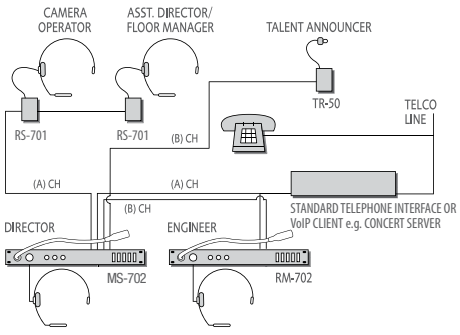


Theater



OB TRUCK

ENG/EFP Truck



Clear-Com Encore ™

MS-702 Two-Channel Main Station

MS-702 Front Panel

The MS-702 is a one-rack-space, two-channel main station with a regulated 1.2-amp "fail-safe" power supply, individual channel short-circuit protection, and a versatile intercom monitoring system. It supports two intercom channels with up to 40 beltpacks or 10 speaker stations. It features Clear-Com's excellent speech intelligibility in both high- and low-noise environments.

Monitoring System

The MS-702 can monitor intercom activity on one or both channels with individual listen-level controls. Monitoring intercom activity is possible through a headset or the internal loudspeaker. The high-sensitivity internal speaker provides intelligible communication in the typical active production environment.

Talk Selection

The MS-702 contains mic preamps with limiters, and speech-shaping circuits for enhanced intelligibility. An individual electronic momentary/latching talk button is provided for each channel. These buttons light dimly when latched - blue-color LED while in stand-by and amber-color LED when latched. The channels may be accessed separately or simultaneously without tying them together. An optional gooseneck mic is available.

Announce Output

For paging applications, the MS-702 provides a balanced, line-level output signal to å/4-inch TRS connector on the rear panel. The front panel "Announce" button activates the output and the Announce relay. The relay circuit, on a separatė/4-inch TRS connector, is typically used to mute control-room monitors during live announcements.

Visual And Audible Signaling

Visual "call" signaling attracts the attention of operators who have removed their headsets or turned off their speakers. Call buttons for each channel signal all stations on that party line by flashing brightly. Along with the visual signal, the station's speaker will emit an audible signal if the remote station operator holds the Call button for more than 2 seconds.

Remote Mic Kill (RMK)

The MS-702 is equipped with a global RMK button. It will turn off the microphone talk circuits of all Clear-Com beltpacks in the system, eliminating extraneous noise from the "open" headset microphones.

Program Input

The MS-702 accepts a line-level external program input for monitoring in the headset and speaker, and/or mixing with intercom audio on either or both channels. When Interrupt is selected, the program signal is interrupted when the Talk button is pressed.

Power Supply & System Protection

The MS-702 provides visual indication of power supply conditions. In the event of a short circuit or current overload on a channel, that channel will shut down while the other one continues to operate. As soon as the fault condition is removed, the "auto-reset" circuitry will restore power to that channel - even under full load conditions.

Simple Set-Up

The MS-702 connects to remote stations with standard, two-conductor shielded mic cable. User-selectable setup dip switches are provided on the rear panel.

Features:

- Supports up to 40 beltpacks or 10 speaker stations on two channels and 12 headsets
- Separate short-circuit protection for each channel
- Dual-action electronic momentary/latching "talk" buttons
- Program feed to both channels, with selectable "Program Interrupt" (IFB)
- "Call" signal buttons for each channel
- Global "Remote Mic Kill"
- Announce output with relay
- Microphone limiting
- Volume controls for each channel
- Visual and audible "Tone Alert" signaling
- Channels A & B "Link" switch
- Built-in speaker
- Optional gooseneck mic
- External switchable line termination on each channel
- Universal voltage power supply for 100-240 VAC operation

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Clear-Com Encore ™

MS-702 Two-Channel Main Station

Clear-Com® COMMUNICATION SYSTEMS

Technical Specifications:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Panel Microphone Input

Input Type:	Electret
Input Impedance:	>=2KΩ
Mic Limiter Threshold:	0 dBu ±3 dB
Mic Limiter Range:	>= 20 dB

Headset Microphone Input

Input Type:	Dynamic
Input Impedance:	>= 1KΩ
Mic Limiter Threshold:	0 dBu ± 3dB
Mic Limiter Range:	>= 15 dB

Program Line Input

Maximum Level before Clipping:	>= 20 dBu
Input Impedance:	>= 5KΩ

Headset Output

Load Impedance:	>= 8Ω
Output Impedance:	<= 25Ω
Output Limiter Threshold:	+5 dBu ± 3 dB
Maximum Output Level before Distortion:	>= 17 dBu

Speaker Output

Load ImpedancE:	>= 4Ω
Max Output Level before 1% Distortion:	20 dBu ± 2 dBu

Party Line Output

Off Noise:	< -74 dBu
Output Impedance:	>10 KΩ

Party Line Input

Crosstalk:	< -60 dB
Max level before Clipping:	>= 12 dBu
Sidetone Null Capability:	> 25 dB

Stage Announce/Balanced Line Out

Type:	Balanced
Output Impedance:	>= 200Ω
Load Impedance:	>= 600Ω

IFB/Hot Mic

Type :	Unbalanced
Output Impedance:	180Ω
Load Impedance:	>= 600Ω

Frequency Response

Panel Mic - Party Line:	600 - 10KHz ± 3dB
Headset Mic - Party Line:	200 - 12KHz ± 3 dB
Headset Mic - Line Out:	200 - 12KHz ± 3 dB
Program Input - Party Line:	100 17KHz ± 3 dB
Program Input - Headset Out:	200 - 10KHz ± 3 dB
Program Input - Speaker Out:	300 - 10KHz ± 3 dB
Party Line - Headset Out:	200 - 10KHz ± 3 dB
Party Line - Speaker Out:	300 - 10KHz ± 3 dB

MS-702 Back Panel

Max Distortion

Panel Mic - Party Line:	<= 0.5%
Headset Mic - Party Line:	<= 0.5%
Headset Mic - Line Out:	<= 0.5%
Program Input - Party Line:	<= 0.2%
Program Input - Headset Out:	<= 0.2%
Program Input - Speaker Out:	<= 0.5%
Party Line - Headset Out:	<= 0.2%
Party Line - Speaker Out:	<= 0.5%

Noise

Panel Mic - Party Line:	< -65 dBu
Headset Mic - Party Line:	< -70 dBu
Headset Mic - Line Out:	< -55 dBu
Program Input - Party Line:	< -85 dBu
Program Input - Headset Out:	< -60 dBu
Program Input - Speaker Out:	< -60 dBu
Party Line - Headset Out:	< -50 dBu
Party Line - Speaker Out:	< -50 dBu

Max Gain

Panel Mic - Party Line:	>= 37 dB
Headset Mic - Party Line:	41 dB ± 2 dB
Headset Mic - Hot Mic Out:	55 dB ± 3 dB
Headset Mic - Announce Out:	55 dB ± 3 dB
Program Input - Party Line:	>= -16 dB
Program Input - Headset Out:	>= 18 dB
Program Input - Speaker Out:	>= 24 dB
Party Line - Headset Out:	>= 34 dB
Party Line - Speaker Out:	>= 40 dB

Min Gain

Panel Mic - Party Line"	<= 25 dB

Mains Power

Input Voltage Range:	100 - 240 VAC
Input Frequency Range:	50 - 60 Hz
Input Power:	<= 60 VAC
Output Voltage :	30 VDC ± 0.5V
Output Current per Channel (Continuous):	1.2 A
Output Current per Channel (Peak):	2 A (Do not exceed the 1.2A rating for more than 2 seconds per 1 minute period)
Short Circuit Recovery Time (1st short):	<= 0.5 sec
Short Circuit Recovery Time >= 20 shorts in 20sec:	<= 20 sec

Station Capacity

Up to 40 RS-601 beltpacks or 10 speaker stations or 12 headset stations distributed over both channels

Rear Panel Connectors

Intercom:	(6) XLR-3M (3 per channel)
Announce Out:	(1) XLR-3M (audio)
Announce Relay:	(1) 1/4 in. (0.64 cm) phone jack (relay)
Program:	(1) XLR-3F
Hot Mic / IFB Interface:	(1) 1/4 in. (0.64 cm) phone jack
AC Power:	IEC 320 connector

Rear Panel Controls

(2) Termination On-Off switches
(8) Option switches
(1) Power switch
(1) Tone alert volume control

Front Panel Connectors

Panel Mic:	(1) 1/4 in. (0.64 cm) panel mounting jack
Headset:	(1) XLR-4M

Front Panel Controls & Indicators

(1) Panel / headset mic switch
(1) Announce button
(1) Party line link button
(2) Program ON-OFF-INTERRUPT switches
(3) Program level controls
(2) Listen controls
(2) Sidetone null controls
(2) Talk buttons
(2) Call buttons
(1) Tone alert button
(1) RMK button
(1) Speaker ON-OFF switch
(2) Short LEDs

Environmental

32 - 122˚F (0 - 50˚C)

Dimensions

19 in. W x 1.75 in. H x 6.5 in. D
(483 mm x 44 mm x 165 mm)

Weight

6.06 lbs. (2.75 kg)

Notice About Specifications

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Clear-Com Encore ™

RM-702 Two-Channel Remote Intercom Station

RM-702 Front Panel

The RM-702 is one of a series of professional remote intercom stations. The remote speaker/headset station allows two-channel selectable talk and listen in one rack space. The operator can talk and listen on either channel separately or talk to both channels simultaneously without tying the two channels together. Specially contoured audio response provides excellent speech intelligibility, even in high-noise environments.

The RM-702 can monitor intercom activity on one or both channels with individual Listen Level controls. Monitor intercom activity through a headset, the internal speaker, or both at once. The 4-watt output amplifier can drive the wide-response speaker or Clear-Com headset to very high output levels - more than enough volume for the noisiest environment. A "speaker dipping" circuit helps to reduce feedback when stations are placed in close proximity to each other.

The station has a convenient speaker "on/off" switch when private conversation via the headset is desired. The station accepts dynamic headsets or optional plug-in gooseneck mic.

Talk Selection

The operator can talk on either of the channels separately or on both at once. A proprietary contoured frequency response in the mic pre-amp enhances speech intelligibity in high-noise environments. Illuminated dual-action talk buttons are electronic momentary or latching; blue-color LED while in stand-by, and amber-color LED when latched. The latching feature may be disabled if desired. The station also features a headset or microphone selector switch. The talk buttons can also be remote controlled with a footswitch.

Signaling

The RM- 702 features individual call buttons and visual call signaling to attract the attention of operators who have removed their headsets or turned off their speakers. The visual signaling flashes the illuminated talk button when a call is received. The call-signaling feature can be programmed to the talk buttons.

AUX. Audio Input and Program Interrupt (IFB)

The station can accept either a balanced or unbalanced line-level audio input through the DB-15 connector on the rear panel. The program can be monitored at the station or fed into channel B, where it can also be set up for IFB/Program interrupt from this or any other Encore station.

Additional Features

Each channel has its own sidetone control. This allows the operator to vary the level of their own voice as heard in the headset. When the announce button is pressed, the microphone signal is routed to a connector on the back panel. Relay contacts are also available for muting speakers or turning on a signal light. The station accepts Clear-Com's 9" or 18" gooseneck microphone.

Features:

- Selectable one- or two-channel communication
- Individual listen volume controls
- Momentary/latching talk buttons
- Individual call buttons
- Visual call signaling
- Balanced audio input with program interrupt (IFB)
- "Hot mic" and line-level outputs
- Studio announce output with relay
- Optional plug-in gooseneck mic
- Wide-range high-output speaker
- One rack space
- LED buttons for talk, call, announce, link, all talk, and mic on

Applications

- ENG and EFP trucks
- Production studio consoles
- Single-channel program interrupt system "IFB" for talent cueing
- Portable sound system equipment racks
- Low-profile "top of console" locations
- Any 2-channel intercom requirement where rack space is at a premium

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RM-702 Two-Channel Remote Intercom Station

Technical Specifications:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Panel Microphone Input

Input Type :	Electret
Input Impedance:	>=2KΩ
Mic Limiter Threshold:	0dBu ±3dB
Mic Limiter Range:	>= 20dB

Headset Microphone Input

Input Type:	Dynamic
Input Impedance:	>= 1KΩ
Mic Limiter Threshold:	0dBu ± 3dB
Mic Limiter Range:	>= 15dB

Program Line Input

Maximum Level before Clipping:	>= 20dBu
Input Impedance:	>= 5KΩ

Headset Output

Load Impedance:	>= 8Ω
Output Impedance:	<= 25Ω
Output Limiter Threshold:	+5dBu ± 3dB
Maximum Output Level before Distortion:	>= 17dBu

Speaker Output

Load Impedance:	>= 4Ω
Max Output Level before 1% Distortion:	20dBu ± 2dBu

Party Line Output

Off Noise:	< -74dBu
Output Impedance:	>10KΩ

Party Line Input

Crosstalk:	< -60dB
Max level before Clipping:	>= 12dBu
Sidetone Null Capability:	> 25dB

Stage Announce/Balanced Line Out

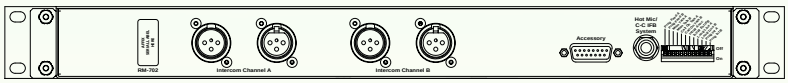
Type:	Balanced
Output Impedance:	>= 200Ω
Load Impedance:	>= 600Ω

IFB/Hot Mic

Type:	Unbalanced
Output Impedance:	180Ω
Load Impedance:	>= 600Ω

Frequency Response

Panel Mic - Party Line:	600 - 10KHz ± 3dB
Headset Mic - Party Line:	200 - 12KHz ± 3dB
Headset Mic - Line Out:	200 - 12KHz ± 3dB
Program Input - Party Line:	100 - 17KHz ± 3dB
Program Input - Headset Out:	200 - 10KHz ± 3dB
Program Input - Speaker Out:	300 - 10KHz ± 3dB
Party Line - Headset Out:	200 - 10KHz ± 3dB
Party Line - Speaker Out:	300 - 10KHz ± 3dB



RM-702 Back Panel

Max Distortion

Panel Mic - Party Line:	<= 0.5%
Headset Mic - Party Line:	<= 0.5%
Headset Mic - Line Out:	<= 0.5%
Program Input - Party Line:	<= 0.2%
Program Input - Headset Out:	<= 0.2%
Program Input - Speaker Out:	<= 0.5%
Party Line - Headset Out:	<= 0.2%
Party Line - Speaker Out:	<= 0.5%

Noise

Panel Mic - Party Line:	< -65dBu
Headset Mic - Party Line:	< -70dBu
Headset Mic - Line Out:	< -55dBu
Program Input - Party Line:	< -85dBu
Program Input - Headset Out:	< -60dBu
Program Input - Speaker Out:	< -60dBu
Party Line - Headset Out:	< -50dBu
Party Line - Speaker Out:	< -50dBu

Max Gain

Panel Mic - Party Line:	>= 37dB
Headset Mic - Party Line:	41dB ± 2dB
Headset Mic - Hot Mic Out:	55dB ± 3dB
Headset Mic - Announce Out:	55dB ± 3dB
Program Input - Party Line:	>= -16dB
Program Input - Headset Out:	>= 18dB
Program Input - Speaker Out:	>= 24dB
Party Line - Headset Out:	>= 34dB
Party Line - Speaker Out:	>= 40dB

Min Gain

Panel Mic - Party Line:	<= 25dB

Power

Input Voltage Range:	20-30 VDC
Input Current (Idle):	<= 90mA
Input Current (Max):	<=110mA

Rear Panel Connectors

Intercom:	(2) XLR-3M (1 per channel) (2) XLR-3F (1 per channel)
Hot Mic / IFB Interface:	(1) 1/4 in. (0.64 cm) phone jack
Accessory:	(1) DB-15F

Rear Panel Controls

(12) Option switches

Front Panel Connectors

Panel Mic:	(1) 1/4 in. (0.64 cm) panel mounting jack
Headset:	(1) XLR-4M

Front Panel Controls & Indicators

(1) Panel / headset mic switch
(1) Announce button
(2) Program send level controls
(1) Program monitor level control
(2) Listen controls
(2) Sidetone null controls
(2) Talk buttons
(2) Call buttons
(1) Speaker ON-OFF switch

Environmental

32 - 122˚F (0 - 50˚C)

Dimensions

19 in. W x 1.75 in. H x 7.0 in. D
(483 mm x 44.5 mm x 178 mm)

Weight

5.2 lbs. (2.36 Kg)

Notice About Specifications

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Clear-Com Encore ™

PS-702 Two-Channel Intercom Power Supply

PS-702 Front view

The PS-702 can supply up to 2 amps at 30 volts DC to two channels in a 1-RU. This is sufficient to power up to 40 beltpacks,10 speaker stations, or 12 headset stations even under the most demanding conditions. Either channel is capable of supplying up to 1.2 amps. The full current capacity may be divided between the two channels.

Clear-Com's advanced fail-safe design can sense the difference between a short and an overload. Should a problem occur, each channel's DC overload/fault LED identifies the power supply's response to the problem: solid means an overload is sensed, but still powered; blinking means power has been temporarily cut off to protect the power supply. If both channels are operating and one channel has a fault, the other channel will continue to operate normally. Power is restored to the shorted or overloaded channel in a little as .5 seconds. With our exclusive Intelligent Fault/Overload Sensing (IFOS), the PS-702 will dynamically increase this time period before attempting another reset until the fault or overload is corrected. This function significantly extends component life. And there is no need to disconnect stations for the power supply to reset.

The unit also offers a convenient front panel intercom line jack, switchable to either channel. This can be quite handy for trouble-shooting or simply a time saver when quick access to either intercom line is needed. A 440Hz tone is available on either or both channels and is indispensable for system diagnostics and set-up. Simply flip a switch, set a level, and go.

Like all current Clear-Com Party-Line power supplies, two or more units can be connected in parallel for increased system capacity or backup redundancy. Multiple units will automatically synchronize their response to power faults and overloads. The PS-702 can also operate as a single-channel unit by using the front-panel A+B link switch.

Features:

- Provides up to 2 amps in only 1RU
- Supports up to 40 beltpacks, 10 speaker stations or 12 headset stations
- Exclusive IFOS Intelligent Fault/ Overload Sensing for system reset
- Front panel intercom line jack selectable for either channel
- A+B Link switch for single channel operation
- Balanced program input with global and individual channel controls
- Universal power supply accepts 100-240 VAC
- Overload/fault indicator for each channel
- Built-in test tone generator for set up and diagnostics
- Switchable terminations for each channel
- Works in parallel with other power supplies and main stations
- UL Listed and CE certified

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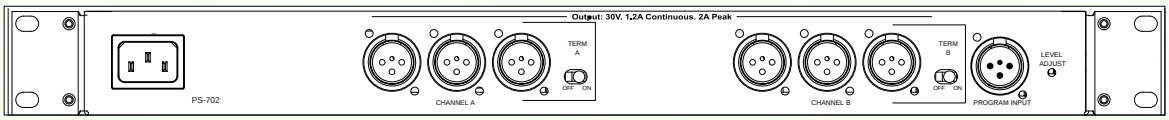
PS-702 Two-Channel Intercom Power Supply



PS-702 Back Panel

Technical Specifications:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Program Line Input
Maximum Level before Clipping: >= 20dBu
Input Impedance: >= 5KΩ

Frequency Response
Program Input - Party Line: 200 - 20KHz ± 3dB

Max Distortion
Program Input - Party Line: <= 0.2%

Noise
Program Mic Input - Party Line: < -70dBu

Max Gain
Program Input - Party Line: >= -16dB

Min Gain
Program Input - Party Line: <= -20dB

Mains Power
Input Voltage Range: 100 - 240 VAC
Input Frequency Range: 50 - 60 Hz
Input Power: <= 60 VAC
Output Voltage: 30 VDC ± 0.5V
Output Current per Channel (Continuous): 1.2 A
Output Current per Channel (Peak): 2 A (Do not exceed the 1.2A rating for more than 2 seconds per 1 minute period)

Short Circuit Recovery Time (1st short): <= 0.5 sec
Short Circuit Recovery Time: >= 20 shorts in 20sec) <= 20 sec

Station Capacity
Up to 40 RS-601 beltpacks or 10 speaker stations or 12 headset stations distributed over both channels

Rear Panel Connectors
Intercom: (6) XLR-3M (3 per channel)
Program: (1) XLR-3F
AC Power: IEC 320 connector

Rear Panel Controls
(2) Termination On-Off switches
(1) Volume control

Front Panel Connectors
Intercom (1) XLR-3M

Front Panel Controls & Indicators
(1) Intercom channel switch
(1) A+B link switch
(2) Program switch
(2) Send level controls
(1) Test tone switch
(2) Overload LEDs
(1) Link indicator LED
(1) Power indicator LED
(1) Power switch

Environmental
32˚ - 122˚F (0˚ - 50˚C)

Dimensions
19 in. W x 1.75 in. H x 7.5 in. D
(483 mm x 44 mm x 190 mm)

Weight
6.16 lbs. (2.80 kg)

Notice About Specifications
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Clear-Com Encore ™

KB-702, KB-702GM, KB-701 Remote Speaker Stations

KB-702

The KB-702 remote speaker station permits the user to select between two channels of party-line communications, with the ability to talk and/or listen on the selected channel. The user can listen via the integral speaker, or may use a headset or telephone-style handset - and can talk via a headset mic, a telephone handset, or a push-to-talk microphone.

The KB-702GM adds a gooseneck-mic connector and VOX circuitry, for hands-free full-duplex communications without a headset. A switch allows the user to choose between the optional GM-9 or GM-18 microphone and the headset connector. The adjustable-sensitivity, close-in VOX feature automatically detects the user's voice at the mic and dips the level of the integral speaker while increasing the gain of the microphone, performing in the opposite manner when listening. The potential for acoustic feedback is minimized while permitting natural conversation levels and dynamics.

Microprocessor-controlled logic and switching yields a feature-rich intercom station in a compact format. Electronic switching for the talk button, blue-color LED (on), amber color LED (off), permits momentary or latching operation. For call signaling, a bright LED lights when a call is activated on a connected intercom channel. A defeatable audible call signal, with level control, is also provided. Separate level controls are provided for intercom level and for balanced program input. A local program source may be fed to the station, allowing the user to monitor that source while remaining in contact on the intercom system. The balanced program input can also be used in conjunction with the stage-announce output of a main station to provide a paging interrupt, allowing paging at the KB station even if the intercom volume control is turned down.

A set of option dip switches is located at the top of the circuit board. Switches are provided for mic-latch disable (momentary-only talk), long-line operation, channel selection, call signal tracking, and audible call signaling.

These versatile stations may be wall or console mounted in a standard U.S. 4-gang electrical box, or may be mounted in the optional V-Box for desktop, surface-mount, or portable applications.

Either of the stations may be used with the optional 4-wire or TW (two channels on a single mic cable) daughter boards. On the TW board, the stations become plug in compatible with a Clear Com TW system. The 4-wire board creates separate send and receive circuits, so that the station may be attached to fiber-optic lines or other audio routing systems with 4-wire connections. The stations are powered by the intercom line or by a local power supply when used with the optional 4-wire daughter board.

Features:

- Selectable two-channel, full-duplex operation
- Microprocessor-controlled logic and switching
- Momentary/latching talk button
- Visual and audible call signaling, with bright LED indicator
- Balanced local program input with separate level control
- Internal controls for call signal tracking, mic latch disable, and other functions
- Use with headset or handset, with integral speaker for monitoring
- KB-702GM adds mic jack for goose-neck mic plus VOX circuitry
- Optional TW and 4-Wire daughter boards provided additional flexibility
- Wall or console mount, or optional V-Box for portable or desktop use
- LED buttons for talk, listen, call, announce, link, all talk, or mic on.

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KB-701 Single-Channel Speaker Station

KB-701

The KB-701 remote speaker station connects to a single channel of party-line intercom, and operates in half-duplex mode, similar to a walkie-talkie. It features both an integral speaker and a flush-mount electret microphone with mic limiter and a push-to-talk button. The station may be programmed via two internal dip switches to operate in four different modes, activated by other stations within the intercom system. The different operating modes are activated using the call signaling function of another station, which allows for individual control of the speaker and microphone.

Microprocessor-controlled logic and switching yields a feature-rich intercom station in a compact format. An electronic momentary-only talk button activates the talk function. Use the talk button or the reomote control from another station to activate the mic. A blue-colour LED indicates that the mic is on, while an amber-color LED indicates the mic is off. Mic sensitivity is selectable for either close or distant voice pickup.

The KB-701 offers both visual and audible call signaling, gaining the attention of the user when not at the station. A red-color LED lights when a call is activated on a connected intercom channel. A defeatable audible call signal, with level control, is also provided. Separate level controls are provided for intercom level and for balanced program input. A local program source may be fed to the station, allowing the user to monitor that source while remaining in contact on the intercom system. The balanced program input can also be used in conjunction with the stage-announce output of a main station to provide a paging interrupt. This would allow paging at the station even if the intercom volume control is turned down. In addition, the intercom volume control of the KB-701 can be internally set so that an incoming message would still be audible, even if the control was turned all the way down.

The KB-701 may be wall or console mounted in a standard 4-gang electrical box, or may be mounted in the optional V-Box for desktop, surface-mount, or portable applications. It may be used with the optional 4-wire or TW (two channels on a single mic cable) daughter boards. The station is powered by the intercom line or by a local power supply when used with the optional 4-Wire daughter board.

Features:

- Single-channel, push-to-talk speaker station
- Four different modes of operation, internally programmable
- Microprocessor- controlled logic and switching
- Flush-mounted internal microphone
- Visual and audible call signaling, with bright LED indicator
- Balanced local program input with separate level control
- Optional TW and 4-Wire daughter boards provide additional flexibility
- Wall or console mount, or optional V-Box for portable or desktop use
- LED buttons for talk, listen, call, announce, link, all talk, or mic on.

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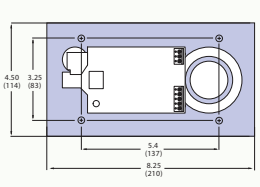
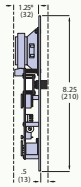
KB-702 in a V-Box

Dimensional Drawings

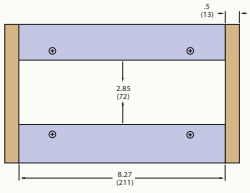


KB-211 Rear View

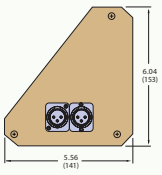


KB-702 Sideview

* 1.75" for KB-702GM or with option modules



V-Box Front View



V-Box Side View

Accessories

4-wire Option Module
The 4-wire option module plugs into pins on the KB- 702, KB- 702GM, and KB-701 speaker stations. It consists of the necessary circuitry and connectors to convert any of these stations to 4-wire operation, and can accept two 4-wire connections. This option allows the speaker station to be used at much longer distances than are possible with a standard two-wire intercom line, and also permits the station to operate via fiber optic cable and other devices with 4-wire connections. The module provides a transformer- isolated audio connection, and does not transfer the call signal.
A station using this option module must be locally powered.

TW Option Module
The option module plugs into pins on the KB-702, KB-702GM, and KB-701 speaker stations. This option allows the station to send and receive two channels of audio on a single 3-pin micro-phone cable. With the TW module in place, the station can become a part of a Clear-Com TW system, and is compatible with TW beltpacks and other components.

V-Box Desktop/Wall-Mount Enclosure
The V-Box converts any of the KB speaker stations into a desktop, portable, or wall-mount unit. The station panel may be secured with four screws in one of the two mounting spaces, for either an angled or a vertical panel orientation. A blank plate with mounting keyholes is provided to cover the second mounting space. 3-pin XLR male and female connectors are mounted on the side panel, wired to a connector block for easy connection to the speaker station. The rugged metal and stained-wood enclosure is both durable and attractive for long-term professional use.

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KB-702, KB-702GM, KB-701 Remote Speaker Stations

Technical Specifications, KB-702/KB-702GM Two-channel Speaker Stations:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Panel Microphone Input (KB-702GM)

Input Type:	Electret
Input Impedance:	>=2KΩ
Mic Limiter Threshold:	-2dBu ±3dB
Mic Limiter Range:	>= 15dB

Headset Microphone Input

Input Type:	Dynamic
Input Impedance:	>= 1KΩ
Mic Limiter Threshold:	-2dBu ± 3dB
Mic Limiter Range:	>= 15dB

Program Line Input

Maximum Level before Clipping:	>= 20dBu
Input Impedance:	>= 5KΩ

Headset Output

Load Impedance:	>= 8Ω
Output Impedance:	<= 25Ω
Output Limiter Threshold:	+5dBu ± 3dB
Maximum Output Level before Distortion:	>= 17dBu

Speaker Output

Load Impedance:	>= 4Ω
Max Output Level before 1% Distortion:	20dBu ± 2dBu

Party Line Output

Off Noise:	< -74dBu
Output Impedance:	>10KΩ

Party Line Input

Crosstalk:	< -60dB
Max level before Clipping :	>= 12dBu
Sidetone Null Capability (KB-702GM only):	> 25dB

Frequency Response

Panel Mic - Party Line (KB-702GM only):	300 - 16KHz ± 3dB
Headset Mic - Party Line:	300 - 15KHz ± 3dB
Program Input - Headset Out:	200 - 18KHz ± 3dB
Program Input - Speaker Out:	200 - 18KHz ± 3dB
Party Line - Headset Out:	200 - 18KHz ± 3dB
Party Line - Speaker Out:	200 - 18KHz ± 3dB

Max Distortion

Panel Mic - Party Line (KB-702GM only):	<= 0.5%
Headset Mic - Party Line:	<= 0.5%
Program Input - Headset Out:	<= 0.2%
Program Input - Speaker Out:	<= 0.5%
Party Line - Headset Out:	<= 0.2%
Party Line - Speaker Out:	<= 0.5%

Noise

Panel Mic - Party Line (KB-702GM only):	< -65dBu
Headset Mic - Party Line:	< -70dBu
Program Input - Headset Out:	< -60dBu
Program Input - Speaker Out:	< -60dBu
Party Line - Headset Out:	< -50dBu
Party Line - Speaker Out:	< -50dBu

Max Gain

Panel Mic - Party Line (KB-702GM only):	>= 37dB
Headset Mic - Party Line:	41dB ± 2dB
Program Input - Headset Out:	>= 18dB
Program Input - Speaker Out:	>= 24dB
Party Line - Headset Out:	>= 34dB
Party Line - Speaker Out:	>= 40dB

Power

Input Voltage Range:	20-30 VDC
Input Current (Idle):	<= 90mA
Input Current (Max):	<=110mA

Internal Adjustments and Connections

Intercom:	Line Five terminal connector
Program Input	Three terminal connector
Option Switches:	Three DIP switches
Call Signal Jumper3:	Three sets of options jumpers
Call Alert Tone Level Control:	Level adjustment control

Front Panel Connectors

Panel Mic (KB-702GM only):	(1) 1/4 in. (0.64 cm) panel mounting jack
Headset:	(1) XLR-4M

Front Panel Controls & Indicators (KB-702GM)

(1) Panel /headset mic switch
(1) Program monitor level control
(1) Sidetone null control
(1) Talk button
(1) Call button
(1) Speaker ON-OFF switch
(1) Channel select switch
(1) Speaker volume control
(1) VOX control
(1) VOX indicator

Front Panel Controls & Indicators (KB-702)

(1) Program monitor level control
(1) Sidetone null control
(1) Talk button
(1) Call button
(1) Speaker ON-OFF switch
(1) Channel select switch
(1) Speaker volume control

Environmental

32 - 122˚F (0 - 50˚C)

Dimensions

8.25 in. W x 4.5 in. H x 1.75 in. D
(210 mm x 114 mm x 44 mm)

Weight

KB-702 0.99 lbs. (0.45 Kg)
KB-702GM 1.1 lbs. (0.50 Kg)

Technical Specifications, KB-701 Speaker Station

Program Line Input

Maximum Level before Clipping:	>= 20dBu
Input Impedance:	>= 5KΩ

Speaker Output

Load Impedance:	>= 4Ω
Max Output Level before 1% Distortion:	20dBu ± 2dBu

Party Line Output

Off Noise:	< -74dBu
Output Impedance:	>10KΩ

Party Line Input

Crosstalk:	< -60dB
Max level before Clipping:	>= 12dBu

Frequency Response

Program Input - Speaker Out:	200 - 18KHz ± 3dB
Party Line - Speaker Out:	200 - 18KHz ± 3dB

Max Distortion

Program Input - Speaker Out:	<= 0.5%
Party Line - Speaker Out:	<= 0.5%

Noise

Program Input - Speaker Out:	< -60dBu
Party Line - Speaker Out:	< -50dBu

Max Gain

Program Input - Speaker Out:	>= 24dB
Party Line - Speaker Out:	>= 40dB

Power

Input Voltage Range:	20-30 VDC
Input Current (Idle):	<= 90mA
Input Current (Max):	<=110mA

Internal Connectors and Jumpers

Intercom:	Line Five terminal connector
Program Input:	Three terminal connector
Option Switches:	Three DIP switches

Front Panel Controls & Indicators

(1) Program level control
(1) Intercom level control
(1) Talk button
(1) Call button
(1) Integral microphone

Environmental

32 - 122o F (0 - 50o C)

Dimensions

8.5 in. W x 4.5 in. H x 1.75 in. D
(210 mm x 114 mm x 44 mm)

Weight

1.04 lbs. (0.47 Kg)

Notice About Specifications

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Headsets and Microphones

Exceptional Sound and Durability

For Everyday Applications

Clear-Com®
AN HME COMPANY

Intercom Headsets and Accessories

CC-300 and CC-400 Headsets

Single- or double-ear headsets with flexible design, excellent noise attenuation and superior comfort. The dynamic microphone can rotate 300-degrees and the microphone boom acts as an On/Off switch for quick microphone muting. Includes standard 4-pin female connector. Interchangeable cabling for easy connector changing and repair.

CC-27 Headset

The CC-27 is a single-ear, wrap around, and rear-worn headset with microphone. 4-pin XLR female. 200-Ohm Dynamic noise cancellation microphone with 150Hz to 10KHz frequency response.

HS15-4F Headset

Ultra comfortable, single-ear, lightweight headset with an electret noise-cancelling microphone. 4-pin XLR female.

Note: Compatible with HME PRO850, Tempest, CellCom/FreeSpeak, V-Series panels and RS-700 Series beltpacks.

CC-40 and CC-60 Headsets

Single- or double-ear general-purpose intercom headsets. 200/400 Ohms and excellent noise attenuation with a dynamic microphone. Straight 5.5 foot cord (1.67 meter) with 4-pin female XLR connector.

CC-010A IFB Ear Set

IFB ear set includes audio driver, coiled acoustic eartube with clothing clip, and 5ft (1.5m) cable with 1/8" (3.5mm) straight mini-jack connector.

HS15D-4F Headset

Ultra comfortable, dual-ear, lightweight headset with an electret noise-cancelling microphone. 4-pin XLR female.

Note: Compatible with HME PRO850, Tempest, CellCom/FreeSpeak, V-Series panels and RS-700 Series beltpacks.

CC-25 Headset

The CC-25 with an electret microphone is only available with mini plug for HelixNet Partyline.

HS15 Headset

Ultra comfortable, single-ear, lightweight headset. Electret noise-cancelling microphone mounted on a flexible boom which rotates for left or right side use.

Note: Compatible with HME DX100, 121, 210, and 300ES.

HS16 Headset

Super lightweight, single-ear headset with noise-cancelling electret microphone can be worn on either ear. Flexible microphone boom ensures optimal sound clarity. Adjustable stainless steel headband provides stable, comfortable fit while ensuring secure positioning of microphone boom.

Note: Compatible with HME DX100, 121, 210, and 300ES.

CC-26K Headset

The CC-26K is a single-ear, 300-Ohm ultra-lightweight (1.3oz) headset with dynamic, noise-cancelling microphone element on a flexible boom. Straight 5.5 foot cord (1.67 meter) with 4-pin female XLR connector.

HS15D Headset

Ultra comfortable, dual-ear, lightweight headset. Electret noise-cancelling microphone mounted on a flexible boom which rotates for left or right side use.

Note: Compatible with HME DX100, 121, 210, and 300ES.

HS4-3 Earpiece & Lapel Microphone

This earpiece and multidirectional electret lapel microphone combo is perfect for more discreet applications where clear, reliable communication is critical, but the earpiece and microphone need to be less conspicuous.

Note: Compatible with HME DX100, 121, 210, and 300ES.

MD-XLR Headset Adapter

These adapters enable headsets with dynamic mics and XLR connectors to interface with all the DX Series headset jacks. An active built-in circuit provides impedance matching and DC isolation. XLR adapters interface with 4P male, 4P female or 5P male headset connectors.

Note: Compatible with HME DX100, 121, 210, and 300ES.

Headset Extension Cable

Six-foot headset extension cable for all mini-DIN DX Series headset connectors.

Note: Compatible with HME DX210 and 300ES.

HSI6000 Headset Interface Adapter

The HSI6000 allows a standard 2.5mm cell phone headset to be connected to the DX Series beltpacks.

Note: Compatible with HME DX210 and 300ES.

Foam pads and spare parts available for all headsets and microphones.

Intercom Microphones

GN-250/GN-450 Gooseneck Microphones

GN-250-25cm/10in Plug-in gooseneck microphone.

GN-450-45cm/18" Plug-in gooseneck microphone.

Note: Compatible with I-Series and ICS panels.

110 Series Gooseneck Microphones

The 110 series of gooseneck condenser microphones offer excellent frequency response, audio sensitivity, and flexible design. Supplied with threaded 3-pin male DIN connectors and windscreens. Available in three sizes: 110/100 – 10 cm (3.9"), 110/340 – 34 cm (13.4"), 110/490 – 49 cm (19.3").

Note: Compatible with V-Series and 4224EBL panels.

GM-9/GM-18 Gooseneck Microphones

The GM-9 (9" length) and GM-18 (18" length) gooseneck microphones feature a gold-plated, threaded, and locking three-conductor quarter-inch phone plug connector. A fitted windscreen is included. The uni-directional electret condenser mic element has a side and rear rejection of greater than 6dB between 100Hz and 10kHz.

Note: Compatible with I-Series and ICS panels.

Intercom Handsets

HS-6 Telephone-style Handset

Telephone-style handset with wall/console mount hanger, push-to-talk switch. Six foot coil cord with 4-pin female XLR connector.

PT-7 Hand-held Microphone

Rugged, push-to-talk, hand-held microphone with mounting clip. Five foot coil cord with 4-pin female XLR connector.

Top: The IMF-102 interface frame with optional TEL-14 and CCI-22 interfaces
Bottom: The IMF-3 interface frame with various optional interfaces

FEATURES

- Connect digital matrix systems with a host of other communications systems
- Two sizes of interface frames: 3 RU x 11 interfaces and 1 RU x 2 interfaces
- Seamless interfacing with telephone, two-way radio, cameras, party-line intercom, IFB systems, other communications systems and control devices
- Interfaces are compatible with Matrix Plus, MicroMatrix, and other digital intercom systems
- Specialty panels for transformer isolation, interfacing with IFB receivers, and connections between Matrix Plus II and Matrix Plus 3 systems

DESCRIPTION

Clear-Com's sophisticated modular interface system is optimized for use with intercom systems. Interfacing permits Matrix Plus, MicroMatrix™,and other digital intercom systems to connect to and communicate via other types of communications systems.

The modular interfaces are mounted into interface frames, which provide the necessary connectors, communications busses, and power. The IMF-3 frame holds up to 11 modules, and the IMF-102 holds two. The frames also provide the capability for redundant power supply, for fail-safe reliability.

IMF-3 Interface Frame, Rear View

When an interface is connected to a port of the matrix frame, the system recognizes and auto-configures it - easing installation and operations. Interfaces are available to connect telephones, party-line and camera intercoms, two-way radios, and other 4-wire audio circuits. Other interfaces enable control functions via the matrix.

INTERFACE FRAMES

The IMF-3 is a 3-RU interface frame that holds up to 11 modules. Modular rear-mounted connector panels feature two RJ-45 connectors to the matrix ports and two DB-9's attaching the connected devices. The frame is used in conjunction with the PSU-101 rack-mountable power supply, providing power to the enclosed interfaces. A second PSU-101 may be attached for redundancy.

The IMF-102 interface frame combines an internal power supply, connection for a second redundant supply, a rear input/output connector panel, and slots for two modular interfaces — all in a 1-RU chassis. The compact frame offers a practical way to add a small quantity of interfaces to a MicroMatrix, Matrix Plus, or other digital intercom system.

Matrix Plus 3
DIGITAL INTERCOM
by Clear-Com

INTERFACES

TEL-14

The TEL-14 is a two-line, auto-nulling digital hybrid telephone interface module. Onboard DSP processors provide greater than 40-dB of trans-hybrid loss, as well as automatic echo-cancellation for the highest intelligibility and audio quality. Enable or disable auto-answer and auto-disconnect. The interface is perfect for establishing IFB connections between the main intercom and remote production trucks, linking intercom communications between remote systems, and enabling telephone calls directly to or from any intercom station in a Matrix Plus or other system.

CCI-22

The CCI-22 connects two 2-wire full-duplex party-line circuits with the matrix. The interface supports Clear-Com signaling to and from the matrix system, deriving its power from the external party-line circuit. Levels and nulling are completely adjustable. The CCI-22 functions with Clear-Com and other two-wire intercom systems.

FOR-22

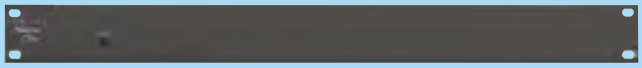
The FOR-22 connects two external 4-wire circuits to the matrix. Camera intercoms, two-way radios, microwave and satellite links, IFB's, and program audio in and out are candidates for the FOR-22. The module provides proper impedance matching, transformer isolation, and level adjustments between systems. It also supports external relay activation and call-sense circuitry.

RLY-6

The RLY-6 provides six fully programmable SPDT (single pole, double throw) relay outputs, to support dedicated switching functions external to the matrix system. The relay interfaces connect to a separate accessory data connector on the matrix card frame, and are programmed and activated through that connector. It is not necessary to use audio I/O ports from the matrix to trigger relays and other logic control devices.

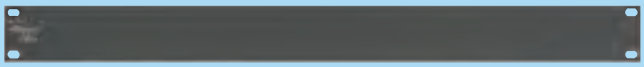
GPI-6

The GPI-6 provides six general-purpose logic inputs into the matrix, allowing external sources to trigger routing changes and other events through the matrix system. Like the RLY-6, this interface is also connected through the separate accessory data connector on the matrix frame. All of the RLY-6 and GPI-6 interfaces in the system are daisy-chained from the accessory connection, and the matrix system will automatically identify both the type and "addresses" of every relay output and logic input. The Matrix Plus system supports a combination of up to 10 GPI-6 and RLY-6 interfaces.

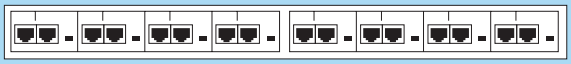


IFB-104

IFB-104 Rear Panel

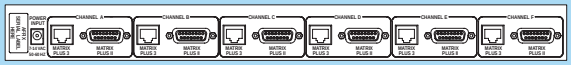


BAL-8



BAL-8 Rear Panel

PIA-32



PIA-32 Rear Panel

PSU-101

PSU-101 Rear Panel

IFB-104 IFB ROUTING PANEL

The IFB-104 is a 1-RU panel that directly connects up to four IFB feeds to the ports of a digital matrix system. Individual or multiple IFB earbuds or headphones may be powered directly from each connected matrix port. Alternately, an intercom power supply may be connected, allowing the use of active personal IFB receivers, such as the Clear-Com TR-50 or TR-532.

The IFB-104 does not require external power to drive its circuitry. Each channel has a rear-mounted wet/dry switch, allowing either direct connection or powering via a party-line intercom power supply. The signal from the matrix port is transformer-coupled to the XLR-connector output.

BAL-8 EIGHT-PORT GROUND ISOLATION INTERFACE

The BAL-8 is a 1-RU interface containing eight 4-pair, transformer-isolated ports. Each port handles two audio signals and two RS-422 data lines. The unit isolates the connection between Matrix Plus 3 ports and peripheral devices such as two-way radios.

Each set of input/output connectors has its own slide switch, allowing the port to be placed into Normal or Interface mode. In normal mode, the data pairs are unaffected, while in interface mode they are connected to indicate to the system software that a direct connection is being made. Each channel has a pair of RJ-45 connectors for input and output.

PIA-32 PERIPHERAL INTERFACE ADAPTER

The PIA-32 is a stand-alone, one-rack-space translator that converts Matrix Plus 3 ports to Matrix Plus II ports. It allows existing Matrix Plus II systems, interfaces, and accessories to be used with Matrix Plus 3 systems without modification. Each unit connects six Matrix Plus II ports, interfaces, or accessories to the Matrix Plus 3 frame.

The PIA-32 translates the different call-signal protocols used by Matrix Plus 3 and II, allowing trunking between systems. It also enables connections between the Matrix Plus 3 frame and the outputs of existing IMF-1 interface frames, and permits interface ID. Further, it enables the connection of third-party telephone interfaces and of the Clear-Com AB-100 On-Air Announcer's Console to Matrix Plus 3 without any modifications.

PSU-101 POWER SUPPLY

The PSU-101 is the power supply for the IMF-3 interface frame. The one-rack-space unit may be connected with a second unit for fully redundant operation. It has both an audible failure alarm and failure relay contacts to activate a remote signal. A single PSU-101 will power a minimum of two interface frames, depending on the type of interfaces and their individual power requirements. Additional power supplies may be added in installations with a large quantity of interfaces, to provide both sufficient power and redundancy.

SPECIFICATIONS

IMF-3 FRAME
Plug-in Module Capacity: 11
Rear Panel Connectors:
(2) 10-pin Jones (for PSU-101 power supply)
To Matrix Frame: (22) RJ-45
(when all interface modules are installed)
Interface I/O: (22) DB9-M
(when all interface modules are installed)
Power Requirements:
200 mA from PSU-101 power supply
Size: 5.25" H x 19" W x 13.75"
(133 x 483 x 345 mm)
Weight: 10 lbs (4.5 Kg)

IMF-102 FRAME
Plug-in Module Capacity: 2
Rear Panel Connectors:
(1) 3-pin EIA (for internal power supply)
(1) 10-pin Jones
(for PSU-101 redundant power supply)
To Matrix Frame: (4) RJ-45
(when all interface modules are installed)
Interface I/O: (4) DB9-M
(when all interface modules are installed)
Power Requirements,
+9 V Analog: 200 mA (frame only)
-9 V Analog: 200 mA (frame only)
AC Requirements: 90 - 250 VAC, 20 W
Size: 1.75" H x 19" W x 13.75" D
(44 x 483 x 345 mm)
Weight: 6.25 lbs (2.8 Kg)

CCI-22 2-WIRE INTERFACE (2 CH)
Frequency Response:100 Hz -15 kHz, +0/-3 dB
Impedance:>10K Ohms (bridging)
Audio Level,
Clear-Com or compatible:-15 dBv nominal
Other: -10 dBv nominal
Call Signal Level (Clear-Com or compatible only): 4 -11 VDC
Nulling Capability,
Line Length: 0 - 4,000 feet
Line Impedance:120 - 350 Ohms
Depth of Null: >30 dB, 200 Hz - 8 kHz
Nulling Tone: Via 1/8" phone jack
Power Consumption(maximum each channel):
40 mA @ 20 - 30 VDC
(Power is supplied by external party-line)
Power Requirements:
0 mA from PSU-101 power supply

FOR-22 4-WIRE INTERFACE (2 CH)
Frequency Response:20 Hz -15 kHz, +0/-3 dB
Audio Input Level: 0 dBv nominal
Input Impedance:>10K Ohms,
transformer balanced
Audio Output Level,
Nominal: 0 dBv, -15 dBv, or -55 dBv,
jumper selectable
Maximum: +20 dBv
Output Impedance:150 Ohms nominal,
transformer balanced
Call Signal Input: 4 - 50 VDC
Relay: SPDT, 24 VDC @ 1 Amp
Power Requirements:150 mA max from
PSU-101 power supply

TEL-14 TELEPHONE INTERFACE (2 CH) AUDIO
Frequency Response:300 Hz - 3.4 kHz
Send Gain Control Range: +/-12 dB
Receive Gain Control Range: +/-12 dB
Ring Detect Sensitivity: Operates with most international telephone ring signal standards.
Auto-Mode Levels:-12 dBv on intercom line for -9 dBm on telephone line; -27 dBm on telephone line for -12 dBv on intercom line.

TELEPHONE DISCONNECT
Dial Tone: 350 Hz + 440 Hz, continuous
Busy Tone: 480 Hz + 620 Hz,
0.5 sec on / 0.5 sec off
Reorder Tone: 480 Hz + 620 Hz,
0.25 sec on / 0.25 sec off
Loop Current Interruption: >5 ms
DC Isolation: >10M Ohms between each telephone line and the IMF interface frame.

POWER REQUIREMENTS
Supplied by the PSU-101 power supply
Voltage Required:Between +/-8 and +/-12 Volts DC unregulated
Current Required: +370 mA /-130 mA

CONNECTORS (VIA IMF FRAME)
To Matrix Frame: (2) RJ-45
DB-9M Connector:
(2) telephone line connections
(2) for relay contacts
Relay Contacts: Type "A1", "Dry", normally open when TEL-14 is on-hook

CONTROLS & INDICATORS (2 EACH)
Hook switch and LED; Send Volume control and LED; Receive Volume control; Auto Gain switch and LED; Auto Answer switch and LED; Auto Nulling reset switch.

SIZE & WEIGHT
Size: 5.0625"H x 1.375"W x 9.16"D
(129 x 35 x 233 mm)
Weight: 0.78 lbs (0.32 Kg)

RLY-6 RELAY INTERFACE
Relays: Six SPDT 24 VDC @ 1 Amp
Power Requirements:150 mA max from
PSU-101 power supply

GPI-6
Input Type: Opto-isolated 4 - 30 DC or AC
Power Requirements:0 mA from PSU-101
power supply

IFB-104 IFB ROUTING PANEL
Indicators: "Power-on" LED

CONNECTORS
Program Input: (4) 3-pin XLR female
To Matrix Frame: (4) RJ-45
Talent: (4) 3-pin XLR male
DC Power: (1) 3-pin XLR male
(1) 3-pin XLR female

PROGRAM INPUT
Type: Transformer isolated
Impedance:600 Ohms bridging
Level: 0 dBv

HEADPHONE TALENT RECEIVER OUTPUTS
Impedance:600K Ohms transformer balanced
Power: 1 mW into 600 Ohms

LINE INPUT
(2-PAIR TALK TO MATRIX)
Type: Transformer balanced
Impedance:600K Ohms
Level: 0 dBv nominal
Frequency Response:100 Hz-15 kHz, +/-2 dB

SIZE & WEIGHT
Size: 1.75" H x 19" W x 2" D
(44 x 483 x 51 mm)
Weight: 1.8 lb. (.82 Kg)

BAL-8 TRANSFORMER-BALANCED PANEL
Connectors,
Output: (8) RJ-45 (to interfaces)
Input: (8) RJ-45 (from Matrix)
Indicators: "Power-on" LED
Isolation: All balanced audio pairs (2 per port connection) are transformer isolated
Frequency Response:100 Hz - 15 kHz
Max Level: +10 dBm
Size: 1.75" H x 19" W x 2" D
(44 x 483 x 51 mm)
Weight: 5 lb. (2.3 Kg)

PIA-32 INTERFACE ADAPTER
Connectors,
Output: (6) RJ-45 (to the Matrix Plus 3 frame)
Input: (6) DB-15F
Indicators: "Power-on" LED
Electrical Requirements:90 to 260 VAC,
50 - 60 Hz @ 12 watts (in-line power supply)
Size: 1.75" H x 19" W x 6.5" D
(44 x 483 x 165 mm)
Weight: 5 lb. (2.3 Kg)

PSU-101 POWER SUPPLY
Two 9-volt switching supplies with audible failure alarm
Output Current: 3 Amps
Indicators: 2 power supply LEDs
Rear Panel Connectors,
Alarm Out: SPST relay @ 1 amp DC rating
Mains Connector: IEC 3-pin connector
AC Power Input,
Voltage:90 - 260 VAC
Power: 125 Volt-Amps maximum
Frequency:50 - 60 Hz
Size: 1.75" H x 19" W x 7.75" D
(44 x 483 x 197 mm)
Weight: 4.5 lbs (2 Kg)

All specifications are subject to change without notice.

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Clear-Com® Intercom Systems

RS-701

NEW!

RS-701

The RS-701 is a single-channel analog beltpack featuring high performance audio for use in a wide variety of environments, all within a rugged ergonomic housing.

DESCRIPTION

The RS-701 is a single-channel analog beltpack with an XLR-3 line connector and XLR-4M headset connector. A mic preamp with a dynamic range of 130 db enables intelligible voice communication for every volume level, from a whisper to a shout. The beltpack also combines high headroom, low-noise audio and shaped frequency contour (Clear-Com Sound) to deliver crystal-clear audio. Recessed rotary volume control, Talk key and Call key guard against accidental activation. The beltpack features LEDs on the top for visual indication of incoming/outgoing call signalization. The RS-701 has a low operating current to allow for more beltpacks in a chain.

DIP SWITCHES AND LEDS

A concealed DIP switch panel on the back of the beltpack allows the capability to select audio and key options quickly and easily. DIP switches can control features such as switching between electret or dynamic headset, setting a minimum or off level for headphone output, adjusting volume settings, enabling or disabling LED signals, having Call on Talk or latching the Talk key. A green LED indicates that the beltpack is powered and a green LED on the Talk key indicates that the microphone is active (Talk is latched). An amber LED indicates a Call signal on the channel.

IMPROVED DESIGN

The RS-701 is designed in a rugged and reliable casing with a retro-design connection to the previous RS-500 Series beltpacks. A belt clip allows a variety of ways to use the beltpack; users can clip it to a belt or lanyard, or users can mount the belt clip to a wall, pole or desk for fixed installations.

COMPATIBILITY

The RS-701 is compatible with all Encore partyline products, as well as the PL-Pro line and other partyline systems via Encore interfaces.

KEY FEATURES AND BENEFITS

- Visual LED indication on top of keypad for Power (green), Call Signal (amber), and Talk Latch (green)
- Tactile buttons for Call and Talk
- Recessed rotary control for Volume with end stops for 270° rotation range
- Concealed, programmable DIP Switches for Latch Talk, Talk with Call, LEDs Off, Mic Gain, Mic Type and HP Level Off
- Fully compatible with current and previous models of Clear-Com analog partyline systems
- Low operating current for more beltpack chaining
- Rugged and strong construction
- “Clear-Com Sound” for intelligible audio

Clear-Com AN HME COMPANY

RS-701 DIP Switches

RS-701 Top View

RS-701 Bottom View

DIP Switch Settings:

1. Mic Type
   ON = Dynamic (default)
   OFF = Electret
2. Headset Output Level
   ON = High
   OFF = Low (default)
3. Min Volume – Channel A
   ON = Mute at min level (default)
   OFF = Not silent at min level
4. LEDs On/Off
   ON = LEDs normal operation (default)
   OFF = All LEDs dark
5. Call-on Talk Enable – Channel A
   ON = Call occurs when talk on
   OFF = No call when talk on (default)
6. Talk Latch Enable – Channel A
   ON = Latch enabled (default)
   OFF = Latch disabled

TECHNICAL SPECIFICATIONS

Microphone Pre-Amplifier

Mic to Line (without limiter acting) Frequency Response: 280 – 15k Hz ± 3dB

Microphone output to line – Audio Level (-50dBm Electret input): -9dBm

Microphone output to line – Distortion: <0.1%

Microphone output to line – Signal to Noise: >65dB

Clear-Com Sound: Yes

Headphone Amplifier

Frequency Response – Line to Headphone: 150 – 20k Hz ± 3dB

Headphone input from line – Audio Level (-9dBm Electret input): 3.5dBm

Headphone input from line – Distortion: <0.5%

Headphone input from line – Signal to Noise: >50dB

Earphone to Mic – Crosstalk: >80dB

Sidetone – Adjustment Range (-80db mic input): >45dB

Keypad Indicators

Power: Green LED

Talk: Green LED

Call: Orange LED

Connectors

Intercom Line: (2) 3-pin XLR–M–F
Ch. 1 2-Wire Intercom Channel
Pin 1: Common
Pin 2: PL Power (+28VDC)
Pin 3: Line (Audio)

Headset: 4-pin XLR–M
Headset Connector
Pin 1: Mic - (Mic Common)
Pin 2: Mic +
Pin 3: Spkr-
Pin 4: Spkr+ (&0.5*VCC DC (Supply between Pin 4 & Pin 1)

Power Requirements

Voltage input range: 12 MIN - 30 MAX VDC

Current (all inputs off): ~12mA MAX

Call Voltages – Call Voltage: 16.5V dc

Call Voltages – Min Call Voltage needed: 3.3V

Environmental

Operating Temp Range: 0˚C - 70˚C (32˚F - 158˚F)

Storage Temp Range: 0˚C - 70˚C (32˚F - 158˚F)

Operating Altitude:

Relative Humidity: 0 - 90% non condensing

Dimensions

3.4in H x 4.5in W x 1.7in D
(86.4 x 114.3 x 43.2 mm)

Weight

0.66 lbs (0.30 kg)

Notice About Specifications

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Clear-Com AN HME COMPANY

RS-702

NEW!

RS-702

The RS-702 is a two-channel analog beltpack featuring a 6-pin XLR, high performance audio for use in a wide variety of environments, all within a rugged ergonomic housing.

DESCRIPTION

The RS-702 is a two-channel analog beltpack with an XLR-6 line connector and XLR-4M headset connector. A mic preamp with a dynamic range of 130 db enables intelligible voice communication for every volume level, from a whisper to a shout. The beltpack also combines high headroom, low-noise audio and shaped frequency contour (Clear-Com Sound) to deliver crystal-clear audio. Recessed rotary volume control, Talk key and Call key guard against accidental activation. The beltpack features LEDs on the top for visual indication of incoming/outgoing call signalization. The RS-702 has a low operating current to allow for more beltpacks in a chain. Additionally, a thumbwheel level adjustment is available for Program In.

DIP SWITCHES AND LEDS

A concealed DIP switch panel on the back of the beltpack allows the capability to select audio and key options quickly and easily. DIP switches can control features such as switching between electret or dynamic headset, setting a minimum or off level for headphone output, adjusting volume settings, enabling or disabling LED signals, having Call on Talk or latching the Talk key for Channel A, having Call on Talk or latching the Talk key for Channel B, Channel B Minimum Volume setting, and RTS/Clear-Com Select. A green LED indicates that the beltpack is powered and a green LED on the Talk key indicates that the microphone is active (Talk is latched). An amber LED indicates a Call signal on the channel.

IMPROVED DESIGN

The RS-702 is designed in a rugged and reliable casing with a retro-design connection to the previous RS-500 Series beltpacks. A belt clip allows a variety of ways to use the beltpack; users can clip it to a belt or lanyard, or users can mount the belt clip to a wall, pole or desk for fixed installations.

COMPATIBILITY

The RS-702 is compatible with all Encore partyline products, as well as the PL-Pro line and other partyline systems via Encore interfaces.

KEY FEATURES AND BENEFITS

- Visual LED indication on top of keypad for Power (green), Call Signal (amber), and Talk Latch (green)
- Tactile buttons for Call and Talk
- Recessed rotary control for Volume with end stops for 270° rotation range
- Concealed, programmable DIP Switches for Latch Talk on Channels A/B, Talk with Call, LEDs Off, Mic Gain, Mic Type, HP Level Off, Min Volume and Call-on Talk
- Fully compatible with current and previous models of Clear-Com analog partyline systems
- Low operating current for more beltpack chaining
- Rugged and strong construction
- “Clear-Com Sound” for intelligible audio
- Program Audio thumbwheel adjustment
- XLR-6 line connectors for 2-Channel + Program Audio

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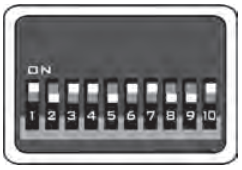

RS-702 DIP Switches

RS-702 Top View

RS-702 Bottom View

DIP Switch Settings:

1. Mic Type
   ON = Dynamic (default)
   OFF = Electret
2. Headset Output Level
   ON = High
   OFF = Low (default)
3. Min Volume – Channel A
   ON = Mute at min level (default)
   OFF = Not silent at min level
4. LEDs On/Off
   ON = LEDs normal operation (default)
   OFF = All LEDs dark
5. Call-on Talk Enable – Channel A
   ON = Call occurs when talk on
   OFF = No call when talk on (default)
6. Talk Latch Enable – Channel A
   ON = Latch enabled (default)
   OFF = Latch disabled
7. Min Volume – Channel B
   ON = Silent at min level (default)
   OFF = Not silent at min level
8. Not Used in RS-702
9. Call-on Talk Enable – Channel B
   ON = Call occurs when talk on
   OFF = No call when talk on (default)
10. Talk Latch Enable – Channel B
    ON = Latch enabled (default)
    OFF = latch disabled

TECHNICAL SPECIFICATIONS

Microphone Pre-Amplifier

Mic to Line (without limiter acting) Frequency Response: 280 – 15k Hz ± 3dB

Microphone output to line – Audio Level (-50dBm Electret input): -9dBm

Microphone output to line – Distortion: <0.1%

Microphone output to line – Signal to Noise: >65dB

Clear-Com Sound: Yes

Headphone Amplifier

Frequency Response – Line to Headphone: 150 – 20k Hz ± 3dB

Headphone input from line – Audio Level (-9dBm Electret input): 7dBm

Headphone input from line – Distortion: <0.5%

Headphone input from line – Signal to Noise: >50dB

Earphone to Mic – Crosstalk: >80dB

Sidetone – Adjustment Range (-80db mic input): >45dB

Keypad Indicators

Power:	Green LED
Talk A:	Green LED
Call A:	Orange LED
Talk B:	Green LED
Call B:	Orange LED

Connectors

Intercom Line: (2) 6-pin XLR–M–F
Ch. 1 2-Wire Intercom Channel
Pin 1: Common
Pin 2: PL Power (+28VDC)
Pin 3: PL Ch-B
Pin 4: PL Ch-A
Pin 5: Program Audio
Pin 6: Program Audio

Headset: 4-pin XLR–M
Headset Connector
Pin 1: Mic - (Mic Common)
Pin 2: Mic +
Pin 3: Spkr-
Pin 4: Spkr+ (&0.5*VCC DC Supply between Pin 4 & Pin 1)

Program Audio Input: XLR-6, pins 5 & 6

Power Requirements

Voltage input range: 12 MIN - 30 MAX VDC

Current (all inputs off): ~13mA MAX

Call Voltages – Call Voltage: 16.5V dc

Call Voltages – Min Call Voltage needed: 3.3V

Environmental

Operating Temp Range: 0˚C - 70˚C (32˚F - 158˚F)

Storage Temp Range: 0˚C - 70˚C (32˚F - 158˚F)

Operating Altitude:

Relative Humidity: 0 - 90% non condensing

Dimensions

3.4in H x 4.5in W x 1.7in D
(86.4 x 114.3 x 43.2 mm)

Weight

0.68 lbs (0.31 kg)

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its data sheets, that information is subject to change without notice. Performance specifications included in this data sheet are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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TEMPEST®2400 WIRELESS SYSTEM

CM-222 2-Channel BaseStation

CM-222 2-Channel Wireless BaseStation

The CM-222 is a 2-channel BaseStation operating in the 2.4GHz frequency range that assures uninterrupted and interference-free communication with no frequency coordination required.

DESCRIPTION

The Tempest CM-222 is a 2-channel 2.4GHz Frequency Hopping Spread Spectrum (FHSS) digital wireless intercom BaseStation. The front panel LCD display provides real time status including battery monitoring of active beltbacks and easy access to the hardwire intercom settings and levels. Each BaseStation is capable of Call and Remote Mic Kill.

VERSATILITY

The CM-222 BaseStation connections include a 2-wire interface with M/F 3-pin XLR loop thru and one 4-wire RJ45 port per channel. The 2-wire interface is compatible with Clear-Com,® RTS,® and Telex® intercom systems, and includes an auto-null circuit.

EXPANDABILITY

Utilizing the Tempest system's TDMA technology and proprietary ZSync synchronization, up to 11 CM-222 BaseStations and 55 full-duplex wireless BeltStations (in Normal Mode) can be used simultaneously. By switching to Shared or Split Mode, an unlimited number of BeltStations can be registered to each BaseStation using shared resources.

RF PERFORMANCE

The CM-222 BaseStation is supplied with a single whip antenna (RP-TNC RF connector). On the rear is a RJ45 connector for a (optional) remote transceiver. The remote transceiver can be located up to 1500ft (450m) away from the BaseStation over CAT-5/6 cable with no loss of RF signal.

TEMPEST2400 SEAMLESS ROAMING

The CM-222 BaseStations cover large areas with multiple zones by using Seamless Roaming. Seamless Roaming allows one or more Tempest2400 BeltStations to roam between as many as 16 different BaseStations (coverage areas or zones) without any intervention from the end user. BeltStations act as they normally do while roaming and there is no interruption of audio or control when a BaseStation switches from one BaseStation to another.

ZSYNC TECHNOLOGY

ZSync technology provides a zero sync reference that coordinates the hopping patterns of all connected BaseStations. ZSync ensures that there is a fixed relationship between all of the BaseStation radios, irrespective of random time variation in power up sequences.

KEY FEATURES AND BENEFITS

- 2-channel digital wireless BaseStation
- 2.4GHz, license free operation
- 2xTX redundant data transmission
- Lost Packet Concealment prevents "clicks" and "pops" when a data packet is lost
- Connect an unlimited number of BeltStations per BaseStation
- T-Desk software enables remote monitoring via LAN interface
- Optional Remote Transceiver extends antenna coverage up to 1500ft (450m) from BaseStation

Roaming Features

- BaseStations provide seamless roaming zones
- Supports Normal, Shared and Split Modes
- Scalable architecture allows for seamless linked roaming zones
- Seamless handoffs between roaming zones – automatic

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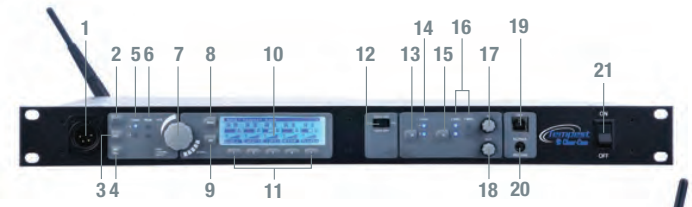
CM-222 2-Channel BaseStation

FRONT PANEL



BACK PANEL

TECHNICAL SPECIFICATIONS

System Specifications

RF Frequency:	2400 to 2480GHz
RF Scheme:	FHSS with TDMA
Effective Radiated Power:	100mW using 2dBi antenna
Receiver Sensitivity:	-93 dBm for 10^{-5} BER
Radio Certification:	FCC Part 15.247 and ETS 300.328 rules, license free
Transmission Range:	Up to 1,000ft (305m); 500 - 900ft (150 - 275m) typical
Audio Dynamic Range:	>94dB
Audio Frequency Response:	300Hz - 3.8KHz with proprietary audio voice shaping

BaseStation Specifications

Intercom Audio Channels:	2
Full-duplex BeltStations per BaseStation:	5 (in Normal Mode)
Half-duplex, Shared BeltStations per BaseStation:	Unlimited
Number of Antenna Ports per BaseStation:	1
Antenna Connector Type:	RP-TNC
Number of Synchronized BaseStations:	10
BaseStation/ BeltStation Pairing:	Mini-jack/cable
Programming Port:	USB
Stage Announce and GPO Closures:	6 relays via DB15
2-wire Intercom Interface:	2 channels via XLR-3F with XLR-3M loop
2-wire Compatibility:	Clear-Com, RTS and balanced compatible
4-wire/Matrix Connection:	2 ports via RJ-45
Aux Input:	1/4" 3-conductor jack accepts -4 to +8dB, balanced, transformer isolated
Aux Output:	1/4" 3-conductor jack nominal -4 to +8dB, balanced, transformer isolated
Stage Announce Output:	XLR-3M, nominal -4 to +8dB, balanced, transformer isolated
Front Panel Headset:	4-pin male XLR
MicrophoneType:	Dynamic or Electret, Auto-Selected

Environmental

-4º – 122º F (-20º – 50º C)

Dimensions

19 in W x 1.76 in H x 12 in D
(483 mm x 44 mm x 190 mm)

Weight

10.5 oz (4.75kg)

Front Panel Legend

1. Local Headset Connector
2. Talk Button
3. Call Button
4. Mic Kill Button
5. Local Headset Channel LEDs A/B
6. Peak LEDs
7. Volume Control
8. Menu Button
9. Enter Button
10. LCD
11. Buttons 1-5
12. 2-Wire Intercom Type Slide Switches
13. Wired Intercom Channel Select Button
14. Channel LEDs
15. 2-Wire/4-Wire Select Button
16. 2-Wire/4-Wire LEDs
17. IN Level Control
18. OUT Level Control
19. USB Connector
20. Beltstation Program Connector
21. Power ON/OFF Switch

Back Panel Legend

1. AC Power Input Connector
2. DC Power Input Connector
3. Intercom Channel A/B Connectors
4. RJ-45 4-Wire Intercom A/B Connectors
5. Stage Announce Connector
6. Aux IN Connector
7. Aux OUT Connector
8. Base Sync IN Connector
9. Base Sync OUT Connector
10. Local Area Network RJ-45 Connector
11. Relay Connector
12. Antenna Connector
13. Remote Transceiver RJ-45 Connector

Notice About Specifications

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ZSync™ Technology

SG-100 ZSync Dongle

SG-120 ZSync Multi-Port Parallel Generator

Powered by ZSync technology, Tempest2400 BeltStation users can roam seamlessly between coverage zones without interruption of audio or control.

ZSYNC™ TECHNOLOGY

ZSync technology provides a zero sync reference that coordinates the hopping patterns of all connected BaseStations. ZSync technology ensures that there is a fixed relationship between all of the BaseStation radios irrespective of random time variation in power up sequences. All Tempest2400 BaseStations must have the same ZSync reference in order to use the Seamless Roaming functionality.

ZSync generates a zero synchronization reference to enable seamless roaming and to improve performance of multi-base systems in non-roaming applications. The beginning of a hop sequence is indicated with a short pulse (1% duty cycle), while the remaining 5,804 pulses in the sequence use a 50% duty cycle.

This ZSync technology is available as a dongle (SG-100) or a 1RU Multi-Port Parallel Generator (SG-120).

ZSYNC DONGLE (SG-100)

The SG-100 is an external zero sync source for Tempest2400 BaseStations with radio version 1.18 or later. The SG-100 includes an integrated 5vDC wall power supply.

ZSYNC MULTI-PORT PARALLEL GENERATOR (SG-120)

The SG-120 is a 1RU rack mount parallel sync generator source for Tempest2400 BaseStations with radio version 1.18 or later, providing a total of 12 parallel sync feeds. Multiple SG-120 parallel generators may be linked together for larger systems.The SG-120 includes a 5VDC wall power supply.

KEY FEATURES AND BENEFITS

- Provides a zero sync reference to coordinate hopping patterns
- Ensures fixed relationship between BaseStation radios
- Enables Tempest2400 Seamless Roaming
- Available as a dongle or a 1RU parallel generator
- RoHS compliant

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BACK PANEL

Parallel Generator Back Panel Legend

1. DC Power Input Connector
2. Base Sync IN Connector
3. Base Sync OUT Connectors

TECHNICAL SPECIFICATIONS

Electrical

Input Voltage Range

SG-100:	90-264 AC
SG-120:	90-264 AC, 4.75-5.25 VDC
Input Frequency Range:	47-63Hz

Input Current

SG-100:	300mA max
SG-120:	600mA max, 500mA typical

In Rush Current

SG-100:	60A max at 230V, 30A max at 115V
SG-120:	30A max at 115V, 60A max at 230V

Power Consumption

SG-100:	0.3W
SG-120:	AC – 1.5W min., 6W max. DC – 1.25W min., 5W max.

Safety and Compliance

Hi-Pot 3000 VAC
(input to output at 10mA for 1 min)

Safety Approvals

SG-100:	UL, FCC
SG-120:	UL, FCC, CB, CE
EMI Standard:	FCC class A, CE
RoHS Compliant:	Yes
Leakage Current:	0.25mA

Environmental

-4º-122º F (-20º-50º C)

Weight

SG-100:	15lbs (dongle), .31lbs (dongle and power supply)
SG-120:	2lbs, 12oz

Cable Length

SG-100 only:	Approx. 6ft

Dimensions

SG-120 only:	19in L x 8.75in D x 1.75in H

Notice About Specifications

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Tempest®2400 Wireless

CCT-RT Remote Transceiver

2 RU Lever key V-Series Panel

Description

The CCT-RT Remote Transceiver allows the two Tempest BaseStation antennas to be located up to 1500 ft (450m) from the BaseStation without any loss of RF signal. The CCT-RT is connected to the BaseStation via a standard CAT-5 cable using RJ-45 connectors. Power is provided over the CAT-5 cable so that no local power is required for the Remote Transceiver to operate normally. The CCT-RT is constructed of aluminum allow. It comes with a universal mounting plate that can be used to mount the transceiver to poles, walls or other desired areas.

Operation

One CCT-RT can be connected to a single Tempest BaseStation (2- or 4-channel). A direct connection is required. The transceiver will not operate properly if connected to a Local Area Network (LAN) or routed through a network device such as a router or switch. The transceiver has two RP-TNC antenna connectors on top of the enclosure that can attach the standard 2dBi whip antennas, or employ optional directional antennas via low loss 50; coaxial cable.

LED Indicators

The CCT-RT is equipped with five LED indicators so that the user can ensure proper operation of the transceiver.

RX and TX LEDs indicate proper data transfer to and from the BaseStation and wireless BeltStation.

Sync and Config LEDs indicate that the transceiver has been properly initialized and is communicating with the BaseStation.

Power LED illuminates whenever the BaseStation is providing adequate power to the transceiver over the CAT-5 cable.

Environment

The CCT-RT is weather resistant and is intended for use outside. It is recommended, however, that in extreme weather conditions appropriate measure are taken to ensure that no water enters into the enclosure.

Features:

- For use with the Tempest 2400 GHz model
- Allows remote location of antennas from the base with no RF signal loss
- Operates on standard RJ-45 CAT-5 cable
- Cable runs up to 1500 ft (450 m)
- Power is provided over the cable from BaseStation
- Durable metal enclosure
- Weather resistant for outdoor use
- RX, TX, Sync, Config and Power LED indicators
- 2 RP-TNC antenna connectors
- Can remote antennas from the Transceiver with low loss coaxial cable

Tempest®2400 Wireless

CCT-RT Remote Transceiver

Technical Specifications

System Specifications

RF Frequency:	2400 to 2480 GHz
RF Scheme:	FHSS with TDMA
Effective Radiated Power:	100mW using 2dBi antenna
Receiver Sensitivity:	-93 dBm for 10-5 BER
Radio Certification:	FCC Part 15.247 and ETS 300.328 rules, license free
Transmission Range:	1,000 feet under ideal conditions (500 ft to 900 ft typical)
Audio Dynamic Range:	>94dB
Audio Frequency Response:	300Hz–3.8KHz with proprietary audio voice shaping
System Latency:	Less than 50ms direct

BaseStation Specifications

Maximum Distance, Base to Transceiver:	1,500 ft., powered from the BaseStation
Connection to BaseStation:	CAT-5 standard wiring
BaseStations Supported per Transceiver:	1
Number of Antenna Ports per Transceiver:	2
Antenna Connector Type:	RP-TNC
Supplied Antenna:	Whip antenna

Environmental

Operating Environment:	-4° to 122° F (-20° to 50° C)
Humidity:	10% to 90%

Dimensions

3.7 in W x 12 in H x 1.7 in D
(94 mm x 304.8 mm x 43.2 mm)

Weight

11 oz (0.3 kg)

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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CP-222 2-Channel BeltStation

CP-222 2-Channel 2.4GHz BeltStation

The CP-222 is a rugged 2-channel wireless BeltStation operating in the 2.4GHz frequency range making it the ideal wireless intercom system for indoors, outdoors and touring applications.

DESCRIPTION

The CP-222 is a 2-channel wireless BeltStation that operates in conjunction with the CM-222 or CM-244 Tempest2400 BaseStations. There are 3 modes of operation for a BeltStation - Normal, Split and Shared. By switching to Shared or Split Mode, an unlimited number of BeltStations can be registered to each BaseStation using shared resources.

Each BeltStation user may simultaneously Talk/Listen on A and B or toggle between A and B in “Single Listen” mode. Volume is set by rotating the CH A or CH B rotary control.

There are two Talk buttons on each BeltStation, one for each channel. The Talk button enables the microphone signal for the assigned intercom channels. Each Talk button has individual LED indicators.

The Talk button can be latching or momentary. The Call button sends a 2-wire compatible call signal to any wireless BeltStation and any hardwired intercom device on the intercom channel.

BeltStations are provided with a rechargeable Li-Polymer battery capable of 9+ hours of operation or can be powered by (3) Standard AA Alkaline batteries. Each BeltStation has its own back-lit display and menu functions which allow settings to be changed at the BeltStation locally.

AUDIO

Each full-duplex BeltStation establishes a unique audio path (point-to-point) with the associated CM-222 or CM-244 BaseStation delivering an individualized mix minus signal to other BeltStations in the system. Therefore, each BeltStation can monitor a unique mix of intercom channels and other audio sources.

DURABILITY

The CP-222 BeltStations are made of a weather-resistant ABS co-polymer blend with a high performance polyurethane over-mold.

TEMPEST2400 SEAMLESS ROAMING

Tempest2400 Seamless Roaming is the ability for one or more Tempest2400 BeltStations to move freely from one BaseStation to another without any intervention from the end user. This allows the implementation of a Tempest2400 wireless intercom system which can cover large areas with multiple zones or areas in a facility that would not be adequately supported by a single antenna installation.

A BeltStation can roam between as many as 16 different BaseStations (coverage areas or zones). In addition, all Tempest operational modes (Normal, Shared and Split) are supported for seamless roaming operation.

KEY FEATURES AND BENEFITS

- 2-channel, full-duplex BeltStation
- 2.4GHz, license free operation
- Dual Talk/Listen operation
- Backlit LCD screen shows battery life, RF signal strength and more
- Stage Announce output with relay closure
- Lithium-Polymer rechargeable battery (or 3 Alkaline AA batteries)
- Weather resistant enclosure

Roaming Features

- Seamless roaming of BeltStation between BaseStations
- Supports Normal, Shared and Split Modes
- Scalable architecture allows for seamless linked roaming zones
- Seamless handoffs between roaming zones – automatic

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BeltStation Legend

1. Volume Channels A/B
2. Channel A and B Talk Buttons
3. STAGE Button
4. ENTER Button
5. CALL Button
6. LCD
7. MENU Button
8. Belt Clip
9. Power ON/OFF Button
10. Battery Compartment
11. Headset Connector
12. BeltStation Pairing Connector
13. USB Mini B Connector
14. Rubberized Access Cover

TECHNICAL SPECIFICATIONS

System Specifications

RF Frequency:	2400 to 2480 GHz
RF Scheme:	FHSS with TDMA
Effective Radiated Power:	100mW using 2dBi antenna
Receiver Sensitivity:	-93 dBm for 10^{-5} BER
Radio Certification:	FCC Part 15.247 and ETS 300.328 rules, license free
Transmission Range:	Up to 1,000ft (305m); 500 - 900ft (150 - 275m) typical
Audio Dynamic Range:	>94dB
Audio Frequency Response:	300Hz - 3.8KHz with proprietary audio voice shaping

BeltStation Specifications

Intercom Audio Channels:	2
Headset Connector:	4-pin male XLR
MicrophoneType:	Dynamic or Electret, Auto-Selected
Antenna Internal:	+2 dBi patch
Charger Input:	100-240V, 0.3A, 50-60Hz
Charger Output:	5V, 1.25A
Battery Charging:	via mini USB connector using supplied charger
Battery Life, Rechargeable Lithium-Polymer:	Up to 9+ hours
Charge Time, Rechargeable Lithium-Polymer:	2 3/4 hours in BeltStation; 2 1/2 hours in charger (from empty)
Optional Power:	3 Standard AA alkaline cells
Battery Life, Alkaline:	Approximately 4 hours

Environmental

-4º – 122º F (-20º – 50º C)

Dimensions

4.0 in W x 6.1 in H x 1.75 in D
(102 mm x 156 mm x 44.5 mm)

Weight

14.3 oz (0.41 kg)

Notice About Specifications

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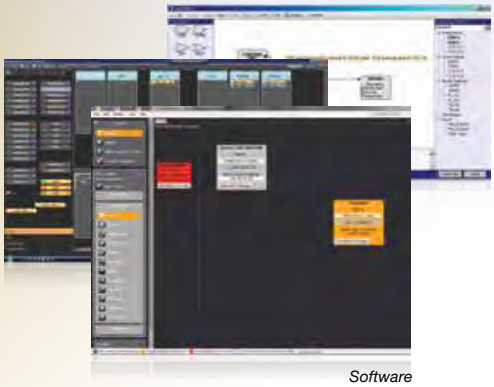
DIGITAL MATRIX INTERCOM SYSTEMS

Eclipse®

V-Series Desktop Panels

V-Series Panels

Interfaces



Software

System Frames

Maximum Flexibility and Resilience

Enabling Critical Production Communications

Clear-Com®
AN HME COMPANY

PRODUCT FAMILY OVERVIEW

The Eclipse Digital Matrix Platform is an established digital intercom platform which enables critical intercommunications among production teams who need direct (point-to-point) and one-to-many (group and partyline or conference) connections. The Eclipse family is designed and engineered to be highly flexible and extensible for addressing the intercom needs of the global production community.

page 4 / SYSTEM FRAMES

page 10 / INTERFACE MODULES

page 6 / USER CONTROL PANELS

page 12 / INTERFACES

page 9 / FRAME CARDS

page 14 / SYSTEM SOFTWARE

SYSTEM FRAMES

The robust Eclipse platform offers a broad selection of powerful system frames for applications of any size and complexity. Multiple Eclipse systems can be linked to expand into a single communication network with up to 3,120 users. As the heart of communication systems for many productions around the world, Eclipse also intelligently integrates with IP-based intercom software and digital wireless intercom systems to provide seamless interoperation. Furthermore, all Eclipse systems are easily managed with intuitive configuration software.

ECLIPSE-PICO

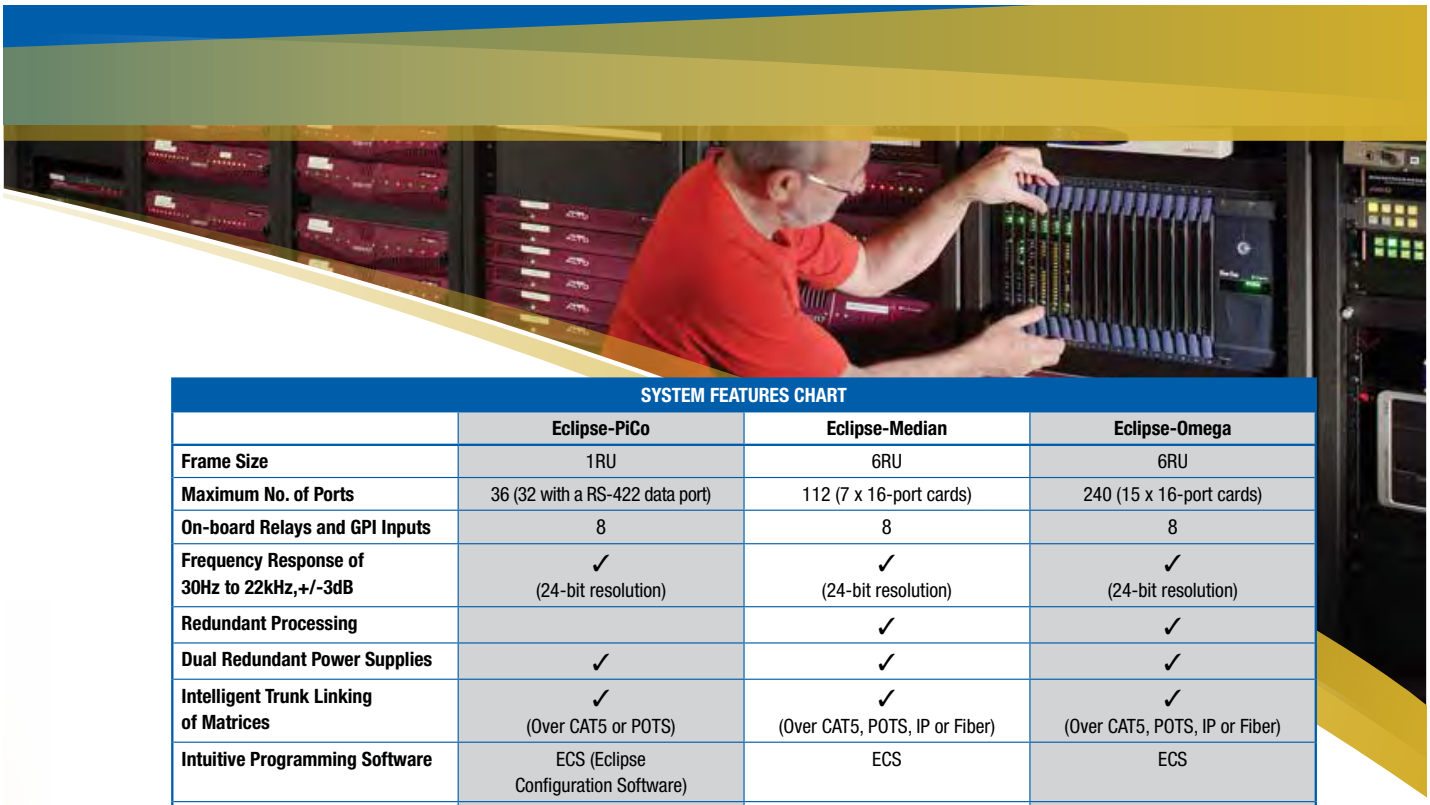
Eclipse-PiCo provides high-quality full-duplex communications requiring a moderate number of ports in a compact 1RU form, ideal for communication needs in small to mid-size production environments such as OB vans, studio and sports facilities. On-board configurations accessible from front menu enable quick and easy changes to input/output levels, routes and configurations.

ECLIPSE-MEDIAN

A powerful 6RU system frame, Eclipse-Median delivers up to 112 CAT5 panel/four-wire ports and can hold any combination of interface cards. The Eclipse-Median houses two CPU and seven matrix slots with eight built-in interface module slots, uniquely designed for outside broadcast vehicles, mobile flight-case systems, or any production environment where rack space is limited. The interface modules are all powered by a redundant pair of PSUs. Up to 15 Eclipse-Median matrices can be connected to form a single networked platform.

ECLIPSE-OMEGA

Eclipse-Omega offers up to 240 RJ-45 ports over 15 card slots in a 6RU frame. Each of the 15 slots can house a range of digital and analog matrix cards to provide full-duplex connections with panels, external lines, and interfaces to other matrix systems. Eclipse-Omega is perfect for large scale communications productions with many users or destination points located in two or more different facilities. By connecting multiple Eclipse-Omega matrices, up to 3120 users can be supported on a single cluster.



SYSTEM FEATURES CHART			
	Eclipse-PiCo	**Eclipse-Median**	**Eclipse-Omega**
Frame Size	1RU	6RU	6RU
Maximum No. of Ports	36 (32 with a RS-422 data port)	112 (7 x 16-port cards)	240 (15 x 16-port cards)
On-board Relays and GPI Inputs	8	8	8
Frequency Response of 30Hz to 22kHz,+/-3dB	✓ (24-bit resolution)	✓ (24-bit resolution)	✓ (24-bit resolution)
Redundant Processing		✓	✓
Dual Redundant Power Supplies	✓	✓	✓
Intelligent Trunk Linking of Matrices	✓ (Over CAT5 or POTS)	✓ (Over CAT5, POTS, IP or Fiber)	✓ (Over CAT5, POTS, IP or Fiber)
Intuitive Programming Software	ECS (Eclipse Configuration Software)	ECS	ECS
Real-time Assignment of Partyline Conferences	Production Maestro Pro	Production Maestro Pro	Production Maestro Pro
Multiple Choices for Panel Connection such as AES3, Direct CAT5 and IP	✓ (IP requires VoICE 2.0 interface)	✓	✓
Port Level Control Adjustment	✓	✓	✓
Seamless Interfacing with Clear-Com IMF Modules	✓	✓	✓
DTMF Inward Access Control	✓	✓	✓
DTMF Outward Dialing	✓	✓	✓
User Menu for I/O Levels, Routing and Status	✓		
Configurable VOX	✓	✓	✓
VOX Detection Controlled from Software	✓	✓	✓
Individual Crosspoint Level Adjustment on User Panels	✓	✓	✓
Connectivity over Non-blocking Fiber		✓	✓
Redundant Ethernet and a Serial Link for Programming	✓ (Single LAN)	✓	✓
System Remotely Programmed and Maintained via Ethernet	✓	✓	✓
Seamless Integration with CellCom/FreeSpeak Digital Wireless		✓	✓
Intelligent Integration with Concert Software Users and IP V-Series Panels		✓	✓

Innovative user control panels deliver unmatched features, functionality, audio quality and performance. Eclipse digital intercom panels are fully programmable and available with rotary, lever key or pushbutton controls. Panel ranges include both display and non-display models.

V-Series 12-Key Lever Panel

V-Series 24-Key Pushbutton Panel

V-Series 12-Key Rotary Panel

V-Series 24-Key Rotary Panel

V-SERIES CONTROL PANELS

V-Series Control Panels combine cutting-edge Digital Signal Processing and native IP technology in an acoustically-controlled contemporary design.

The broadest variations in form and size: The V-Series Panels are available in rotary-, pushbutton-, or lever-key in 12-key/1RU panel, 24-key/2RU panel and 12-key Desktop panel forms. Up to eight Expansion panels for additional keys can be added to the 12-key and 24-key panels in rotary-, pushbutton- and lever-key forms.

Distinctive and extensive graphic display: The bright yellow OLED color provides superior contrast for accentuating the panel labels for greater legibility in dim locations and for enhancing visibility in bright sunlight. Source and destination labels are more distinct and easily identified through 10-character high resolution graphic displays with international character support.

The V-Series panels are capable of **simultaneously running both eight shift pages, and up to eight extension panels** giving the user flexible solutions for area intercom (shift) and many extra physical keys on extension panels for source or IFB routing.

User-configured signaling LEDs and Listen Again digital memory: User-configured signaling LEDs make incoming calls easy to follow at busy times. When there are multiple calls or operators miss the last call, the Listen Again digital memory can replay up to the last 30 seconds of any incoming call at his/her fingertips.

Digital Signal Processing (DSP) and Audio Level Controls: Leading Digital Signal Processing (DSP) makes local and centralized real-time changes to audio routing and effects possible. Individual up and down level controls let users adjust personal audio mix for all calls or to send call alerts to partylines. The Supervisor functionality centralizes control of any V-Series panel, enabling efficient workflow.

Connection options: Analog CAT5/CAT6, digital CAT5/CAT6 with AES-3, Co-Ax video cable and IP direct to the panel (enabled by I.V.Core Technology).

V-Series 24-Key Lever Panel

USER CONTROL PANELS

PANEL FEATURES

- 12 or 24 rotary, lever, or pushbutton keys combination for user preference
- Robust, high contrast yellow OLEDs
- Keypad for telephone dialing and quick menu access (2RU and Desktop models)
- Front-mounted loudspeakers for high impact audio
- Assignable Main and Auxiliary Rotary level controls with LED level indication
- Gooseneck microphone and headset with a choice of XLR-4 or XLR-5 connectors
- 10-character displays with contemporary, easy-to-read font, including international character fonts
- Rear connections for Audio I/O and GPI control
- Native IP connectivity built-in
- XLR type RJ-45 for robust matrix connection
- Soft menus for local assignment
- “Listen Again” digital audio memory replay
- Supervisor capability

V-Series 12-Key Pushbutton Desktop Panel

V-Series 12-Key Lever Desktop Panel

V-Series 12-Key Pushbutton Panel

LEGACY CONTROL PANELS

i-1200E

i-1400E

i-1430E

i-1470E

e-1410E

I-Series Panels

Rugged and reliable 1RU panels. Factory built with four 5-character selector modules and a microphone headset module. The 32 key i-Series panels also include keypads. Five standard are available:

i-1200E 2x8-key non-display, gooseneck and headset connections and loudspeaker with level control

i-1400E 4x8-key non-display, gooseneck and headset connections and loudspeaker with level control

i-1430E 4x8-key display gooseneck and headset connections and loudspeaker with level control with keypad (dial and assignment menus)

i-1470E as per I-1430E, but with AUX-101 option (local audio and GPIs)

e-1410E 4x8-key display extension panel

Note: Clear-Com reserves the right to withdraw legacy control panels from sale at any time following sufficient notice.

4224EBL Panel

32 (+32 shift) pushbuttons. Assignable crosspoint level control. Four character high-contrast VFD (vacuum fluorescent display) labels.

ICS-2003E Panel

12-key master intercom panel. Large, informative display screen. Keypad for programming, IFBs, partylines, DTMF dialing and direct access to any panel or port in a single matrix.

ICS-1008E Panel

16 pushbutton keys, non-display panel

ICS-1016E Panel

32 pushbutton keys, non-display panel

ICS-22 Panel

Flush-mount dual channel panel (US 4-gang wall box size) with headset and gooseneck microphone connectors. Simple A and B channel call selections.

High performance, 6RU high frame cards for the Eclipse-Median and Eclipse-Omega system frames establish intelligent connections.

E-Que Card

A wireless cell controller card and rear that seamlessly connects the Eclipse Digital Matrix with the CellCom/FreeSpeak Integra for digital wireless communication to provide E1 and T1 Trunking and high capacity links between matrix frames.

E-FIB Card

Fiber-Net card and rear Interface enables dual redundant audio fiber network connections to 14 other frames.

MVX-A16 Card

A 16-port audio and data card set for use with panels, interface modules and direct ports using balanced four-wire audio and RS422 data interfacing. The card set consists of a front router card and a 16 way RJ45 port rear card.

LMC-64 Card

The IP-based audio level monitor card, installed in the Eclipse system frame, enables the Production Maestro Pro application to use the Clear-Vu Audio Metering for up to 64 channels per card. Using two standard scaling options, Nordic and VU, the LMC-64 Card enables easy and rapid audio adjustments for any critical application.

E-MADI Card

The E-MADI (Multiple Audio Digital Interface) card provides connection with standard MADI devices with up to 64 AES3 format digital audio “four-wires”. The card can be configured for 24, 32, 48, 56 or the full 64 channels with sample rates up to 96kHz.

IVC-32 Card

The IVC-32 card provides up to 32 IP channel connections of high performance and low latency audio connections in and out of the Eclipse-Median or Eclipse-Omega frames. The IVC-32 card has two main purposes: to integrate Concert and to enable IP connections with all V-Series IP-enabled panels. This card makes extending intercom access to new users in remote locations highly flexible and cost-effective.

Note: Up to three E-MADI cards or up to four E-Que, IVC-32 or LMC-64 cards can be fitted in Eclipse-Median or Omega frames.

INTERFACE MODULES

Connections with third-party devices or panels are enabled in the Eclipse using a variety of interface modules.

CCI-22 (Dual Partyline Ring Interface Module) connects two 2-wire full-duplex partyline circuits with the matrix. The interface supports Clear-Com signaling to and from the matrix system, deriving its power from the external partyline circuit. Levels and cable nulling are completely adjustable. The CCI-22 functions with Clear-Com and other two-wire intercom systems.

FOR-22 (Dual 4-wire Transformer Balance and Radio Relay Control Module) connects two external four-wire circuits to the matrix. The module provides proper impedance matching, transformer isolation and level adjustments between systems. It also supports external relay activation and call-sense circuitry.

TEL-14 (Dual Telephone Interface Module) The two-line, auto-nulling digital hybrid telephone interface module is designed for establishing IFB connections between the main intercom and remote production trucks, and enabling telephone calls directly from any intercom panel in an Eclipse matrix.

AES-6-CX and AES-6-RJ The six-channel AES-6-CX module connects V-Series or 4000 digital panels to Eclipse matrices over AES3 digital audio pairs (RJ) or Co-Ax (CX), providing two audio paths to the intercom panel.

RLY-6 (6-way Relay Control Module) provides six fully programmable SPDT (single pole, double throw) relay outputs, to support dedicated switching functions external to the matrix system. This provides for external DC signal light activation or door control, for example.

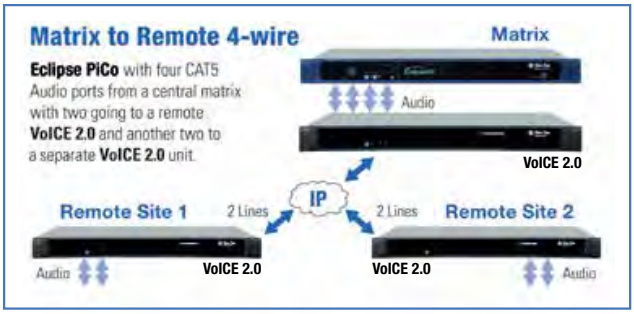
GPI-6 (6-way General Purpose Input Control Module) provides six general purpose Opto logic inputs into the matrix, allowing external sources to trigger routing changes and other events through the matrix system.

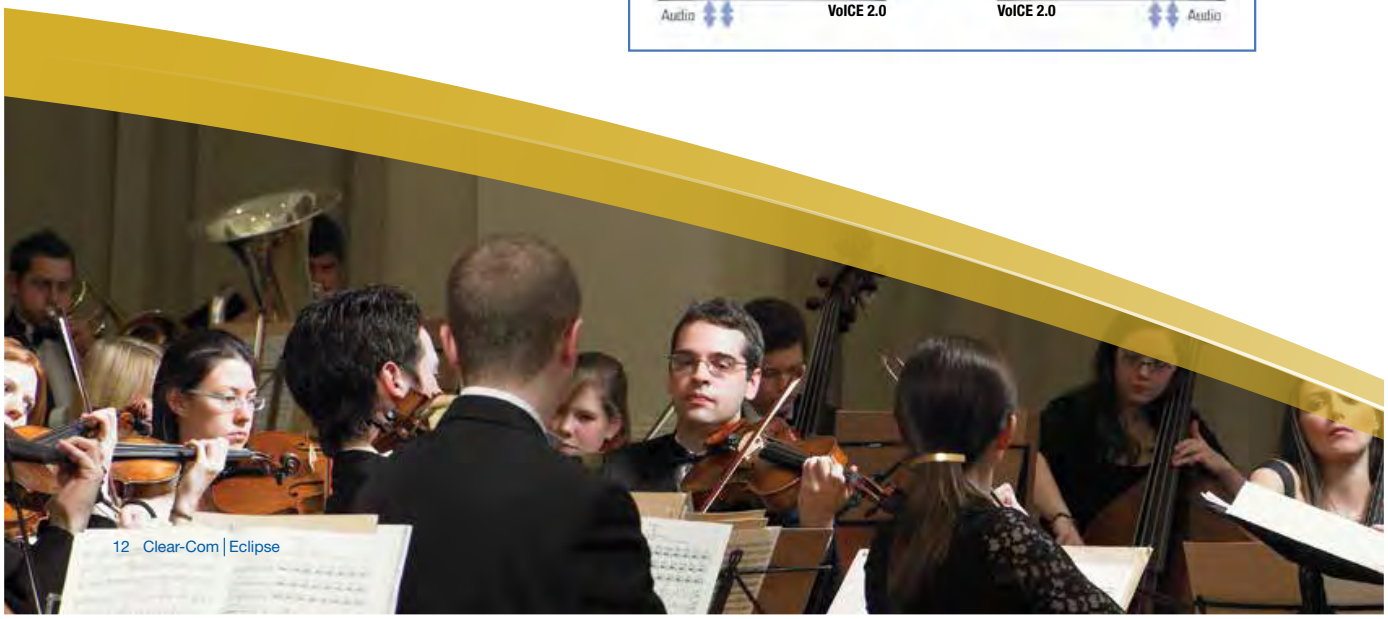
Clear-Com VoICE 2.0 frame (Voice over IP Communications Equipment) can be used to link multiple Eclipse system frames together that are located at remote sites over IP.

Each four-way VoICE 2.0 interface frame, when operating back to back with other frames, can provide:

- Up to 4 remote user panels intelligently linked backed to the Eclipse
- Up to 4 intelligent trunk lines between remote matrix systems
- Up to 4 four-wire Audio pairs and 4 Asynchronous RS-422 data links between remote sites

Matrix to Remote Panels
Eclipse PiCo with up to 4 CAT5 ports to VoICE 2.0 frame
Audio/RS-422
IP
VoICE 2.0 frame to up to four panels via CAT5
Audio/RS-422
x 4





Rack-mountable interface frames offer a practical way to hold interface modules and directly connect external audio sources to the Eclipse systems.

IMF-3 interface frame holds up to 11 interface modules in a 3RU chassis. Modular rear-mounted connector units feature two RJ-45 connectors to the matrix ports and two DB-9s attaching the connected devices. The frame is used in conjunction with the PSU-101 rack-mountable dual power supply, providing power to the enclosed interfaces.

PSU-101 is the power supply for the IMF-3 interface frame. It has both an audible failure alarm and failure relay contacts to activate a remote signal. A single PSU-101 will power a minimum of two interface frames, depending on the type of interfaces and their individual power requirements.

IMF-102 interface frame combines an internal power supply, connection for a second redundant supply, a rear input/output connector panel and slots for two modular interfaces – all in a 1RU chassis. The compact frame offers a practical way to add two interfaces to an Eclipse-Omega, Median or PiCo Matrix frame. A PSU-101 can be added for power supply redundancy.

TW-60 interface supports “Radio Interoperability” and interfaces with up to four Land Mobile Radios. The interface can connect to earphone, microphone and push-to-talk radio controls. An audio output delay, to allow key-up time of a radio system on the outbound side of each connection, is also included with delay between 0 and 5000ms. Receive level, Transmit level and Delay time are three separate controls for each radio.

BAL-8 (8-way Transformer Balance unit) is a 1RU interface containing eight transformer isolated ports. The unit isolates the connection between matrix ports and peripheral devices such as two-way radios and four-wires. (All Eclipse matrix direct outputs are low impedance electronically balanced.)

IFB-104 (IFB line Interface) is a 1RU panel that directly connects up to four IFB feeds to the ports of a digital matrix system. Individual or multiple IFB ear buds or headphones may be used directly from each connected matrix port.

The IFB-104 does not require external power to drive its circuitry. Each channel has a rear-mounted wet/dry switch, allowing either direct connection or powering via a partyline intercom power supply. The signal from the matrix port is transformer-coupled to the XLR connector output.

Eclipse Configuration Software (ECS)

ECS gives users graphical views of the system, panels and control logic (Logic Maestro) for ease of configuration and management of the entire Eclipse network. More built-in automation, a pre-set factory configuration, intuitive hardware discovery, and better visibility of the software settings—are all new features and functions to enhance the out-of-box start-up experience.

Logic Maestro

Production Maestro Pro

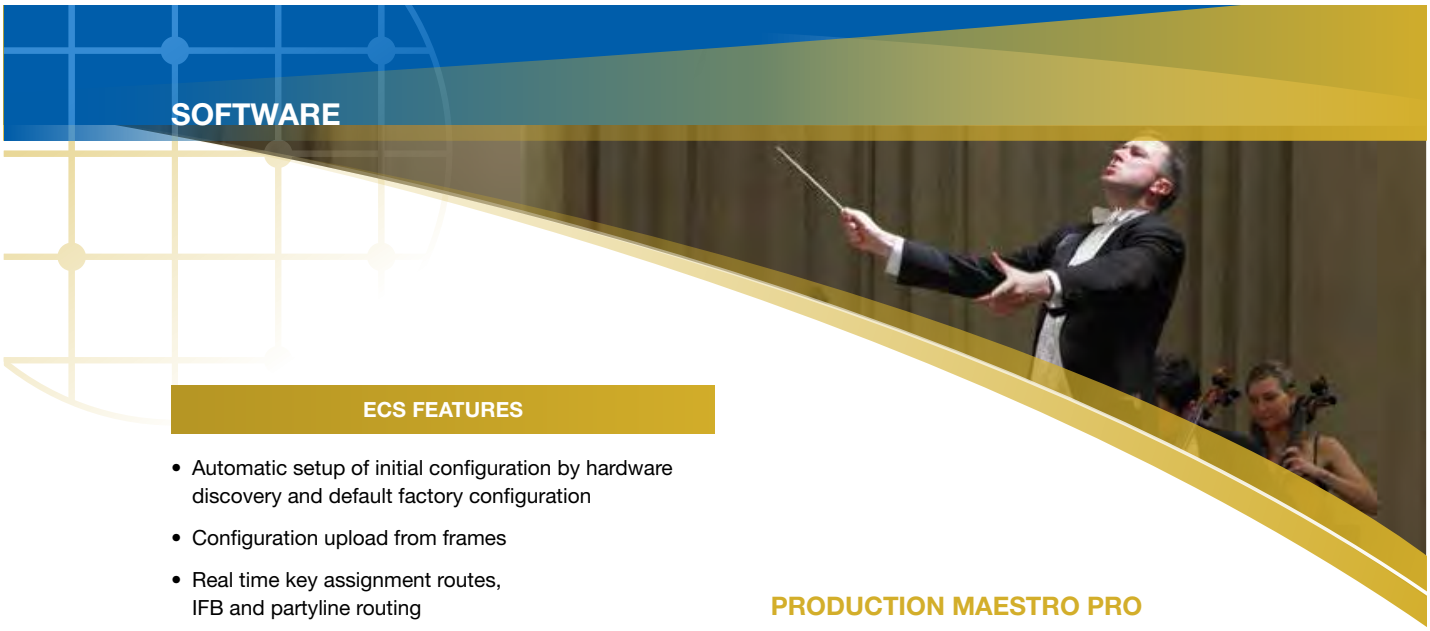
Eclipse Configuration Software (ECS)

ECS has the ability to apply labels online in real time and set up control functions to each individual panel button. This is combined with a series of drop-down menus to easily access different features of the system such as label assignments, networking, DTMF access, key functions and much more.

Based on a stand alone or client/server concept, programming is done from a PC through Ethernet LAN connections. Status and diagnostic messages are available, allowing systems to be maintained remotely.

Key label and audio route changes are available in real time without download. An unlimited number of configurations may be backed up on a computer and downloaded to the matrix frame as needed.

SOFTWARE



ECS FEATURES

- Automatic setup of initial configuration by hardware discovery and default factory configuration
- Configuration upload from frames
- Real time key assignment routes, IFB and partyline routing
- Centrally set global and local IFB operations
- Programmable and real time V-Series Panel audio routing-mixing
- DTMF dial tone inward access
- Activation of relays, routes, and DTMF sequences via controls
- Global label based key latch disable
- Configuration of frame and panel relay controls
- Port I/O audio level control
- Centrally set local and global ISO routes
- 8 programmable pages on a panel
- 4 configuration maps per frame
- Intelligent linking (analog and digital trunks over 4-wires, E1 or T1 and Fiber)
- Hardware graphical diagnostics and reporting
- Event and status logging
- Logic Maestro for graphical logic control programming
- CellCom/FreeSpeak Integra Digital Wireless beltpack configuration
- Eclipse 5.2.4 and later versions can support E-MADI cards

PRODUCTION MAESTRO PRO

Production Maestro Pro is an add-on software module of the Eclipse Configuration Software for flexible and fast conference and lines routing setup. It manages live external lines in and out of any small or large intercom central system to remote users' panels and their keys, which is very useful for technical operators handling large sports venue lines upstream of studio users. Users can simply route four-wire lines to groups of panel users instantly with the graphical assignment system.

Production Maestro Pro's Clear-Vu Audio Metering enables visual audio levels on a PC screen using real-time graphical meters. Clear-Vu provides both activity and level monitoring of feeds with a glance while reducing the need for multiple monitoring speakers.

PRODUCTION MAESTRO PRO FEATURES

- A real-time production tool
- Intuitive drag-and-drop assignment
- Multi-user synchronized operations
- Multiple levels of undo/redo
- Resilient fault tolerant design
- Audio input level adjustment
- Real-time conference renaming
- 4-wire route monitoring
- Key Groups for assigning panel keys as one entity
- Save time by assembling preset conferences in advance of their activation
- Adjust input and output audio levels
- Audio metering (requires LMC-64 card)

Eclipse HX-PiCo

Eclipse HX-PiCo

The Eclipse HX-PiCo is a small to mid-size solution for a high-quality, cost-effective digital matrix system that can have up to 36 audio ports in a 1RU rack space.

DESCRIPTION

The Eclipse HX-PiCo frame is a one rack unit (1RU) digital matrix intercom frame. The front panel of the Eclipse HX-PiCo provides controls (pushbuttons), indicator lights, and a display for operating the system. The back panel holds the RJ-45 connectors (ports) for connecting user panels, interface modules, interface frames, and other matrix frames to the system.

INTERFACE MODULES

External to the HX-PiCo matrix frame, interface modules are supported in optional 1RU and 3RU IMF frames. Interface modules convert the HX-PiCo ports to other types of signals that communicate with devices such as telephones, two-way radios, camera intercoms, partylines, and other forms of external communication.

Interface modules include: TEL-14 (telephone interface), CCI-22 (dual partyline interface), FOR-22 (4-wire interface), GPI-6 (general-purpose inputs), RLY-6 (relay outputs), and AES-6 (digital interface used with V-Series panels with the AES-3 option card and AES equipment).

LINKING ECLIPSE HX-PICO'S

Two 36-port Eclipse HX-PiCo matrix frames can be intelligently linked using the high capacity PiCo-Link (CAT-5) connector on each device to create a 72-port non-blocking system.

LINKING WITH ECLIPSE HX MATRIX FRAMES

An Eclipse HX-PiCo can intelligently link to Eclipse HX-Omega, Eclipse HX-Median or Eclipse HX-Delta matrices using dedicated trunk lines between ports on the linked systems. Up to 64 matrix ports may be connected together for a networked system. Any port may be used as a trunk line, creating one full-duplex communications path between other matrices within the system. Typically, the number of trunk lines equals the anticipated maximum simultaneous communications between matrices. The system intelligently uses and releases these lines to route the communications traffic between panels connected with the various matrices, routing the calls through available open trunks.

POWER AND REDUNDANCY

The system offers dual redundant internal power supplies to ensure no system failure at any point during critical use. One power supply unit can power an entire matrix, while the second unit provides a backup in case of failure or damage to the first unit. Built-in sensors are connected to a warning light, allowing the system operator to diagnose a potential problem and take action.

HIGH SPEED SOFTWARE

The EHX Software provides configuration for all Eclipse HX matrices and networked systems.

KEY FEATURES AND BENEFITS

- 36 analog ports (32 ports support panels or interfaces)
- 8 onboard GPOs and 8 onboard GPIs
- Intelligent linking of up to 64 matrices with 4-wire trunks and LAN
- PiCo-Link: intelligently links audio between co-located Eclipse HX-PiCo frames
- 2 internal power supplies for redundancy
- User menu for I/O levels, routing and status
- DTMF inward access and outward dialing
- 4 configurations selectable by front menu
- Individual level control adjustments
- VOX-programmable audio
- Remote access via Internet/Ethernet
- Supports EHX Software (Eclipse HX Configuration Software)

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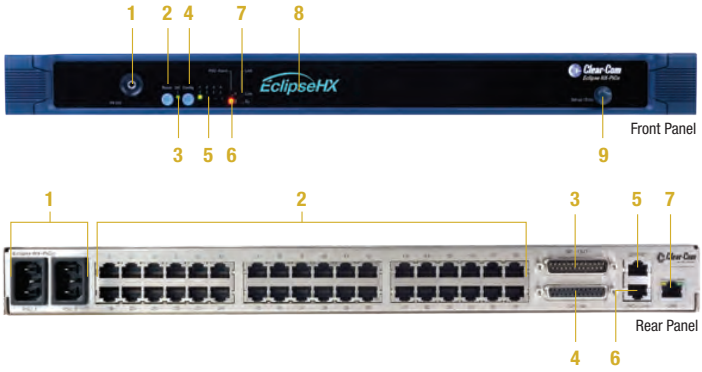

Eclipse HX-PiCo Front Panel

1. PC null-modem serial connector
2. Reset button
3. OK light (LED)
4. Configuration (CONFIG) button
5. Configuration status lights
6. Power supply alarm lights (1 and 2)
7. LAN Status lights
8. Display (menu) screen
9. Setup / Enter rotary control

Eclipse HX-PiCo Rear Panel

1. IEC AC power input connectors (2)
2. RJ-45 connectors (36)
3. GPO connector
4. GPIs connector
5. GPI-6/RLY-6 interface module connector (RJ-45)
6. PiCo-Link connector (RJ-45)
7. LAN connector (RJ-45)

TECHNICAL SPECIFICATIONS

0 dBu is referenced to 0.775 volts RMS

General

Power Consumption:	60 W Max. per inlet
No. of Panel Compatible Ports:	32
No. of Analog Audio Ports:	4
No. of Power Supply Units:	2
No. of Ports Per System (max.):	36 per system; 72 ports from 2 HX-PiCo linked matrices

Matrix Performance

Sample Rate:	48 kHz
Resolution:	24 bit
Frequency Response:	at 48 kHz sampling: 30 Hz - 22 kHz ± 3 dBu
Crosstalk (Adjacent Channel):	<-70 dBu
Nominal Level:	0 dBu
Matrix Headroom:	18 dBu
Distortion:	<0.05 %, at 0 dBu, 300 Hz to 10 kHz; <0.1 %, at 0 dBu, 100 Hz - 20 kHz
Off Noise:	<-98 dBu relative to +18 dBu, 20 Hz - 22 kHz
On Noise:	<-83 dB relative to +18 dBu, 20 Hz - 22 kHz
Key Response, Intra-System:	<40 ms for audio route
Linked Systems:	<60 ms for audio between matrices

Matrix Interfaces

GPI Inputs:	8 total; opto-isolated
GPI Outputs (Relays):	8 total; isolated relay contacts
GPI Connector:	25-pin D-type socket on rear panel
GPO Connector:	25-pin D-type plug on rear panel
External GPI-6/RLY-6:	RJ-45 on rear panel
Network:	10/100 Base-T Ethernet
Serial PC RS-232 Baud Rate:	57600
Maximum Distance:	10 meters
Number of Ports:	1
Connector:	3.5 mm socket on front

System Programming

Crosspoint Level Control:	0.355 dB steps
Input Level Control:	0.355 dB steps
Output Level Control:	0.355 dB steps
VOX Input Detection Threshold:	0 dB to - 40 dB adjustable

Environmental

Operating Temperature:	32°F - 104°F (0°C - 40°C)
Storage Temperature:	-67°F - 158°F (-55°C - 70°C)
Humidity (max.):	90% non-condensing

Dimensions

19 in. W x 1.75 in. H x 12 in. D

(482 mm x 44 mm x 300 mm)

Weight

11 lbs (5 kg)

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its data sheets, that information is subject to change without notice. Performance specifications included in this data sheet are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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Clear-Com AN HME COMPANY

FOR ECLIPSE® AND ECLIPSE® HX MATRIX SYSTEMS

V-Series User Panels - Rotary

V-Series Rotary Desktop

V-Series Rotary 1RU Panel

V-Series Rotary 2RU Panel

The V-Series Rotary Panels are user control panels that operate in conjunction with the Eclipse and Eclipse HX Digital Matrix Systems. The Rotary Panels feature dial knobs and pushbutton for quick and easy individual audio controls for personal mixes and group assignments.

DESCRIPTION

The V-Series Rotary Panels are user control key-panels that operate in conjunction with the Eclipse Digital Matrix Systems. Rotary key-panels feature one display window per “key” and have two individual controls for the same display; a rotary encoder for level control with a pushbutton switch feature for Listen (push on/off) and separate pushbutton for Talk (push on/off). Each control offers discrete LED tally indication; red for Talk and green for Listen.

All Eclipse HX-compatible V-Series key-panels include a vertical font option for vertical mount application. Keys on the rack-mount panels can be color-coded for easily-identifiable, color tallies: red keys for Partyline, 4-wire or other panels; blue keys for Phone lines; and purple keys for IFB.

DISPLAY

All V-Series key-panels have international alpha-numerical 10-character yellow OLED displays, providing high-contrast for dim environments, as well as greater visibility in bright sunlight. The yellow OLED’s provide extended lifetime and reduce the overall cost of ownership for each panel.

FUNCTIONALITY

There are four basic types of Rotary key-panels: 1RU (12 key), 2RU (24 key), Desktop (12 key) and Extension (12 key). Each talk pushbutton has an associated audio level rotary switch control and can be configured for Talk and Listen. A menu button gives the user access (if allowed) to make changes to the panel functions, system assignment and set ups. A shift key gives access to up to 8 additional pages. The panel includes rear audio connections for external audio with options, hot mix out and GPIO’s for footswitches and push-to-talk keying.

Individual Rotary level controls let users adjust personal audio mixes for all calls.

Advance Digital Signal Processing (DSP) allows for centralized changes to audio routing and effects. The panels have a “Listen Again” feature that records caller audio that can be played back.

PANEL TYPES

The 1 Rack Unit (1RU) key-panel comes with 12 talk pushbuttons and 12 rotary listen switches.

The 2 Rack Unit (2RU) key-panel comes with 24 talk pushbuttons and 24 rotary listen switches. The 2RU panel is offered with an additional dial keypad which allows telephone dialing and quick access to menus.

The Desktop key-panel has the same features as the 1RU and 2RU panels, but has been designed in a smaller configuration to provide commentator split operation with stereo monitoring, cough switching and local IFB control/loudspeaker dimming.

An Extension panel is used to increase the number of Talk/Listen paths for a user. The Extension key-panel comes in a 1RU only; therefore, it has 12 talk pushbuttons and 12 rotary listen switches. Up to 8 extension panels can be added to each host key-panel and can be placed up to 16ft (5m) away.

KEY FEATURES AND BENEFITS

- Individual key menus help ease of use and assignment
- Yellow OLEDs for better contrast and visibility
- Individual rotary audio level controls for personal mixes
- Vertical-font display option
- Color-coded keys for easily identifiable color tallies
- “Listen Again” function to replay calls
- Fast key assign mode for local port assignment using dial keypad
- International 10-character alpha-numeric fonts: Cyrillic, Hanigul, Kanji, Katakana and Arabic
- Digital Signal Processing (DSP) for audio routing, EQ and Dynamics, IFB routing and local loudspeaker dimming
- Built-in connection options include: GPIO, multi-channel Aux Audio, CAT5 and Ethernet/IP
- Optional AES-3 card for digital CAT5 or Co-Ax connections

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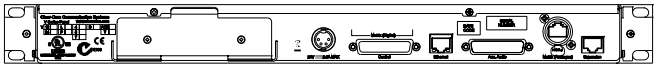
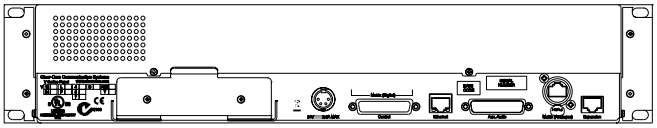
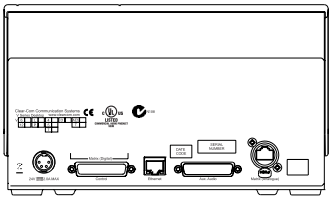
REAR PANELS



1RU V-Series User Rear Panel



2RU V-Series User Rear Panel



Desktop V-Series User Rear Panel

TECHNICAL SPECIFICATIONS

Front Panel Controls & Connectors

Talk/Listen Switches:	11 (1RU); 23 (2RU)
Answer Back Switch:	1 (optional for Rotary)
Volume Controls:	2 (Main and Aux)
Headset Connector:	1 (XLR-4M or XLR-5F)
Panel Mic Connector:	1 (3-pin)

Rear Panel Connectors

GPIO:	DB-25F
To Matrix:	RJ-45
Auxiliary Audio:	DB-25M
Expansion:	RJ-45
DC Power 4 DIN - Co-Ax Option:	75 Ohm BNC
AES3 Option:	RJ-45

Headset Audio

Earphone Impedence:	From 32 Ohms
Output Power:	75mW into 50 Ohms for <1% distortion

Loudspeaker Audio

Frequency Response:	40Hz-20KHz +/- 3dB

Panel Microphone Input

Type:	Electret
Level:	40-70 dBu
Impedence:	1700 Ohms +/- 10%

Headset Microphone Input

Type:	Dynamic or Electret
Level:	-40 - 0 dBu

Main Power Supply (External)

Voltage:	100/240 VAC +/- 10%
Frequency:	50 - 60 Hz
Power:	50W maximum

Environmental

Operating:	32º – 125º F (0º – 50º C)
Storage:	32º – 150º F (0º – 70º C)
Humidity:	Between 20% and 90%, Non-Condensing

Dimensions

1RU:	19in W x 1.76in H x 6.75in D (483 mm x 44 mm x 172 mm)
2RU:	19in W x 3.5in H x 6.75in D (483 mm x 89 mm x 172 mm)
Desktop:	10.25in W x 5.9in H x 6.75in D (260 mm x 150 mm x 172 mm)

Weight

1RU:	3.5 lbs (1.6 kg)
2RU:	7.5 lbs (4.0 kg)
Desktop:	6.0 lbs (2.75 kg)

ORDER CODES

PART NO.	DESCRIPTION
V12RDX4	1RU Rotary Display Panel 4 pin XLR Headset Connector
V12RDX5	1RU Rotary Display Panel 5 pin XLR Headset Connector
V24RDX4	2RU Rotary Display Panel 4 pin XLR Headset Connector
V24RDX5	2RU Rotary Display Panel 5 pin XLR Headset Connector
V12RDDX4	Desktop Rotary Display Panel (12 Keys) 4 pin XLR Headset Connector
V12RDDX5	Desktop Rotary Display Panel (12 Keys) 5 pin XLR Headset Connector
V12RDEY	1RU Rotary Display Extension Panel
V12RDX4Y-AES	1RU Rotary Display Panel for Co-Ax/AES3 4 pin XLR Headset Connector
V12RDX5Y-AES	1RU Rotary Display Panel for Co-Ax/AES3 5 pin XLR Headset Connector
V24RDX4Y-AES	2RU Rotary Display Panel for Co-Ax/AES3 4 pin XLR headset Connector
V24RDX5Y-AES	2RU Rotary Display Panel for Co-Ax/AES3 5 pin XLR Headset Connector
V12RDDX4Y-AES	Desktop Rotary Display Panel (12 Keys) for Co-Ax/ AES3 4 pin XLR Headset Connector
V 12RDDX5Y-AES	Desktop Rotary Display Panel (12 Keys) for Co-Ax/ AES3 5 pin XLR Headset Connector

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its data sheets, that information is subject to change without notice. Performance specifications included in this data sheet are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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v.9_9/13

Clear-Com® AN HME COMPANY

1.88-1.93GHZ DIGITAL WIRELESS INTERCOM SYSTEM

FreeSpeak®

Digital Clarity and Versatile Operations

For Unsurpassed Wireless Performance

FreeSpeak is not available in the U.S. and Canada.

Clear-Com®
AN HME COMPANY

FreeSpeak operates in the license-free 1.88-1.93GHz* frequency band, where it is away from the crowded radio spectrum that is saturated with Wi-Fi or other wireless devices. FreeSpeak can be offered as a standalone system, complete with a 1RU Base Station and up to 20 beltpacks. Alternatively, it can be utilized as a seamless wireless beltpack solution to the Clear-Com Eclipse-HX Matrix System, providing up to 40 wireless user connections per E-Que card and adapting the functions offered by the main system.

The Clear-Com FreeSpeak Wireless Intercom System is a true class act.

Unsurpassed crystal-clear digital sound clarity gives users full-duplex (talk-listen) 7kHz "commentator" bandwidth of audio. This level of sound quality is ideal for users with extended usage needs.

Wide wireless coverage can be achieved by strategically placing up to 10 remote antennas. Each Active Antenna can be positioned as far as 3,200 feet away from the Base Station, and can create a coverage zone of up to 800 feet.

Flexible cellular roaming technologies allow users to move freely about in large, multi-room production environments without the worries of fading or losing connections. With DECT (Digital Enhanced Cordless Telecommunications) technology at its core, FreeSpeak continuously scans, selects, and connects with the best Active Antenna for uninterrupted communication.

*Exact frequency range depends upon country. Japan: 1.893GHz - 1.906GHz

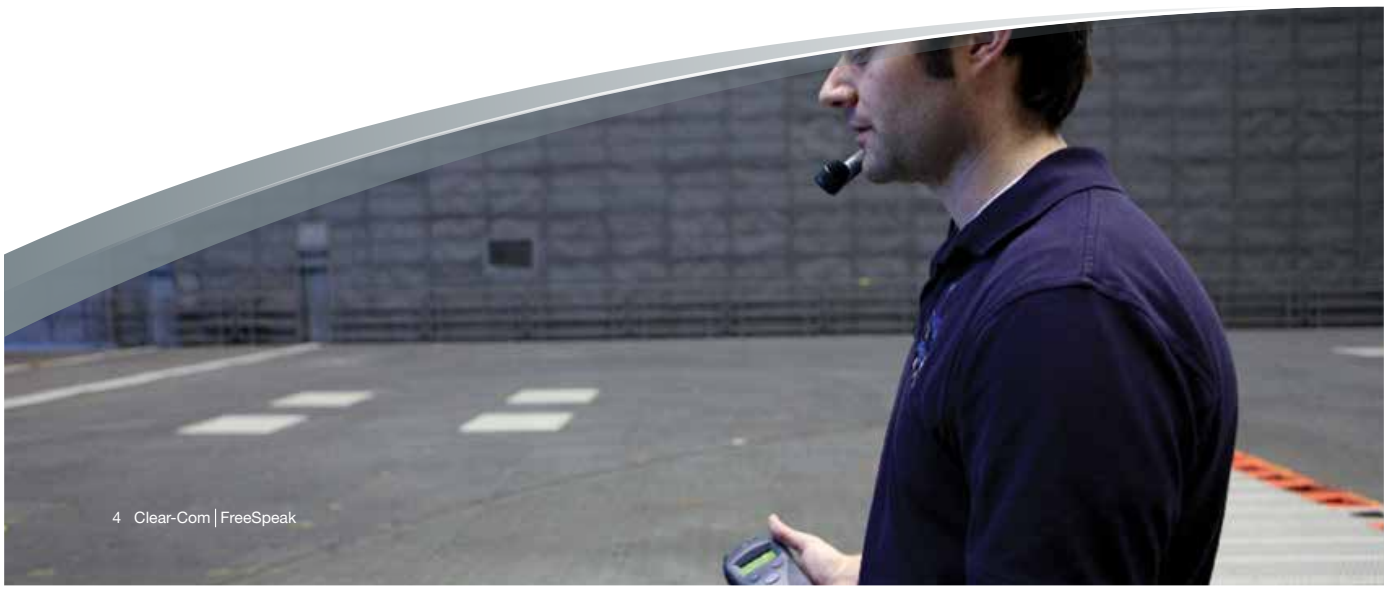
FreeSpeak Base Station

The FreeSpeak Base Station serves as the heart of the wireless communications system for all digital wireless beltpack users. The Base Station supports up to 20 full-duplex wireless beltpacks. FreeSpeak cellular auto-roaming technology enables beltpacks to continuously detect and automatically select the best connection. Even in the most crowded RF environments, FreeSpeak remains highly secure and free from interference.

Each beltpack can be individually addressed by the Base Station, allowing multiple combinations of beltpack-to-beltpack (point-to-point) and small-group (partyline) conversations to happen simultaneously.

FreeSpeak **can be programmed through the software menus** on the base or via the PC-based software. All aspects of the beltpacks, the rear-panel connectors, and the creation of communication routes and groups can be configured. Relative audio levels among beltpacks, and input and output levels for the wired connections are also under software control.

The FreeSpeak Base Station has **four 4-wire and two 2-wire intercom connections** on the rear panel that allows communication with other wired intercom systems. Program feed input, Stage Announce output and Stage Announce relay output are also available as connections at the back of the Base Station.



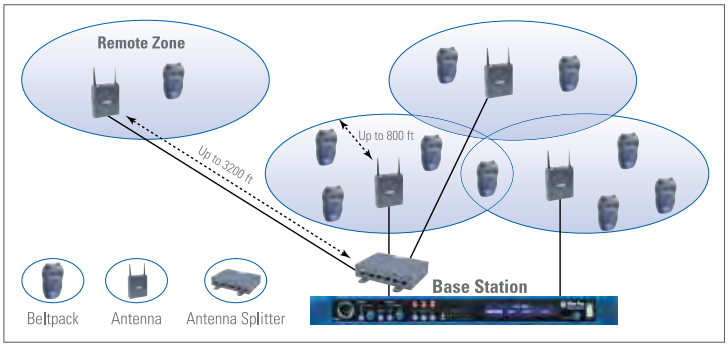
ACTIVE ANTENNA

FreeSpeak users can **roam far distances away from the Base Station** while staying connected. This is achieved through Active Antennas, which make wireless connections to the beltpacks.

Locally-powered Antennas may be located up to 3,200ft (1,000m) away or 800ft (250m) when centrally powered from the Base Station.

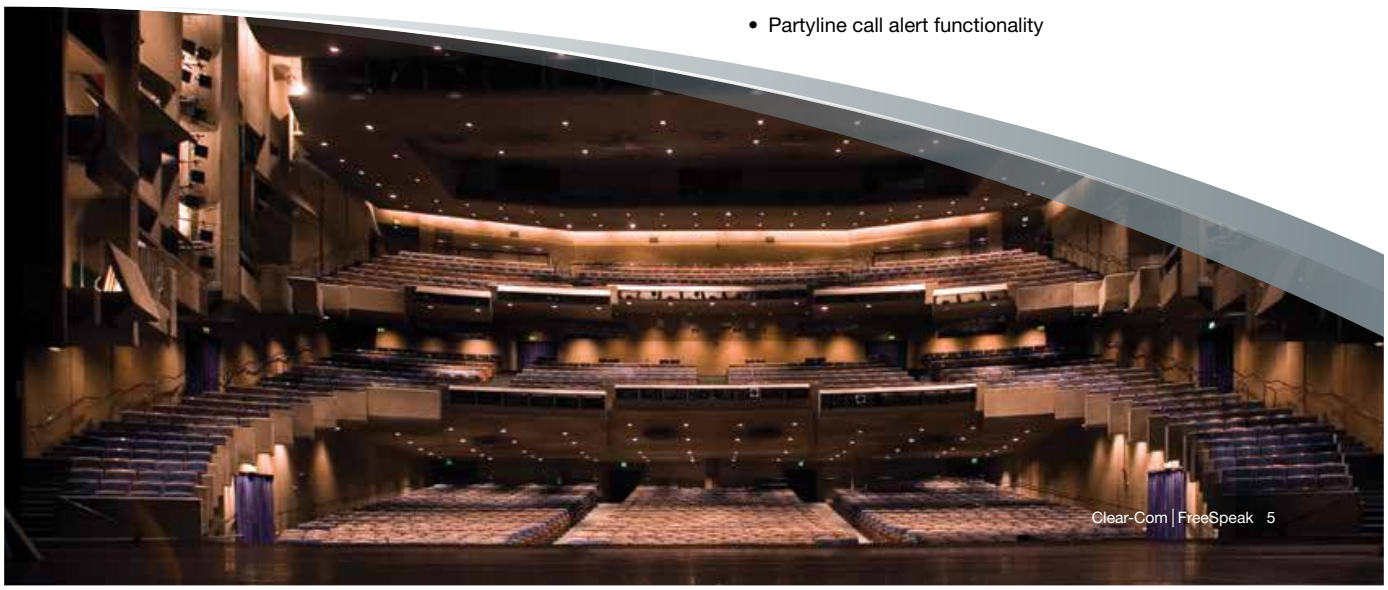
The **omni-directional coverage area** may be up to 800ft (50 to 150m typical) in radius, although typical distances in production environments range from approximately 160 to 640ft (50 to 200m).

Each Active Antenna supports up to **five full-duplex beltpacks in one coverage area**. By co-locating additional Active Antennas, more than five beltpacks can be supported in a particular area.



FREESPEAK SYSTEM FEATURES

- License-free 1.88-1.93GHz DECT operations
- Supports up to 20 wireless beltpacks
- Point-to-point and small group wireless communications
- Creates user placed coverage zones, with up to 10 remote antennas
- 10 LED Active Antenna indicators
- Locate Active Antennas up to 3,200ft (1,000m) from Base Station
- Create, name, and assign groups
- Two 2-wire and four 4-wire connectors
- Frequency and channel-hopping technology automatically finds clear spectrum
- Interrupted fold-back (IFB) functionality for on-screen talents
- Five wireless partyline groups
- Partyline call alert functionality



Wireless Beltpack

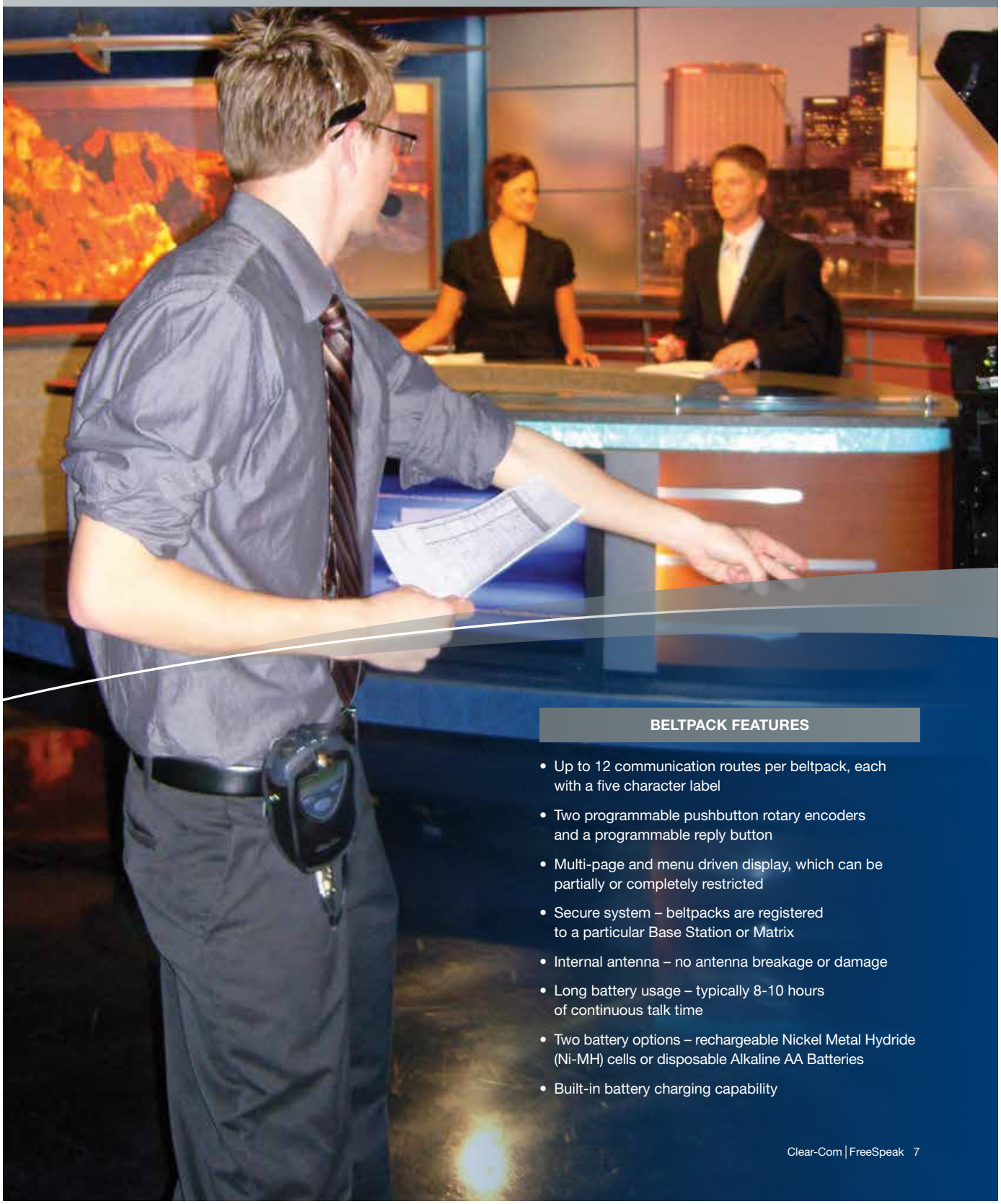
The FreeSpeak Beltpack offers a clever design which combines an unparalleled set of features and functions with an ergonomic and compact form factor.

Full-duplex 7kHz bandwidth offers high audio quality and reduces the strain on the user's ears after extended usage.

Two push-to-talk rotary encoders and multi-page display allow up to 12 communication routes to be assigned to each beltpack. These can be any desired combination of group and point-to-point communication assignments.

Large LED backlit display provides extensive information, including the names of beltpacks, assigned users and groups of each beltpack, battery level, and signal strength.

A variety of **beltpack menus are accessible via the display** including headset levels, microphone levels, audible alert at low battery level, and adjustable local sidetone.



BELTPACK FEATURES

- Up to 12 communication routes per beltpack, each with a five character label
- Two programmable pushbutton rotary encoders and a programmable reply button
- Multi-page and menu driven display, which can be partially or completely restricted
- Secure system – beltpacks are registered to a particular Base Station or Matrix
- Internal antenna – no antenna breakage or damage
- Long battery usage – typically 8-10 hours of continuous talk time
- Two battery options – rechargeable Nickel Metal Hydride (Ni-MH) cells or disposable Alkaline AA Batteries
- Built-in battery charging capability

Unique to Clear-Com, FreeSpeak Integra is the only seamlessly integrated wireless beltpack to Digital Matrix Systems intercom solution on the market.

FreeSpeak Integra allows all FreeSpeak beltpack users to communicate to any matrix panel, partyline or interface on the Clear-Com Matrix System on a one-to-one or group basis. The FreeSpeak Beltpack seamlessly integrates with the Clear-Com Eclipse HX-Omega, Eclipse HX-Median and Eclipse HX-Delta Matrix Systems via a cell controller card called the E-Que card, which is directly fitted in the matrix frames.

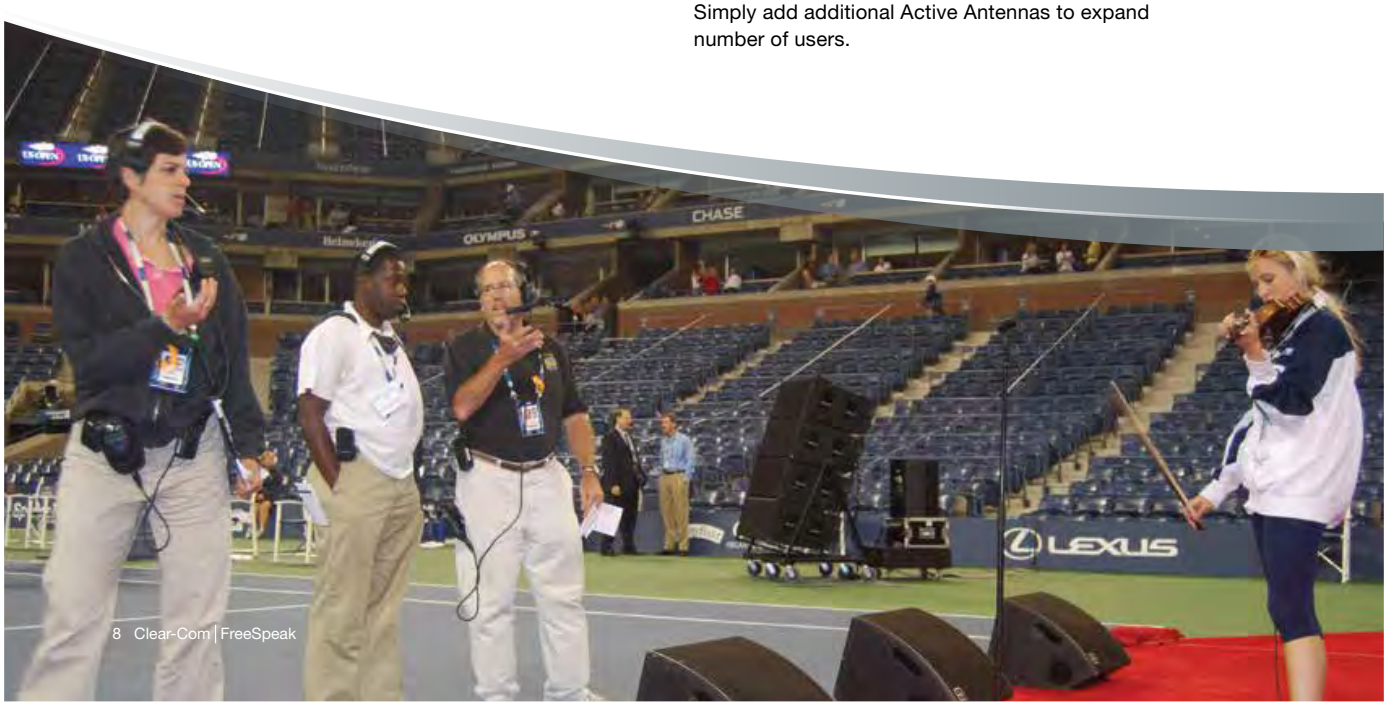
The E-Que card provides connectivity between the beltpacks and any number of ports within the Matrix System, thereby creating **a truly seamless environment**.

Up to **40 wireless beltpacks** per E-Que card (depending on environment) can roam between 40 Active Antennas and communicate on a Matrix System. Up to four E-Que cards can be used in one Matrix frame.

FreeSpeak Integra offers the ability to **individually address** each beltpack and then connect that beltpack to one or many users on the Matrix.

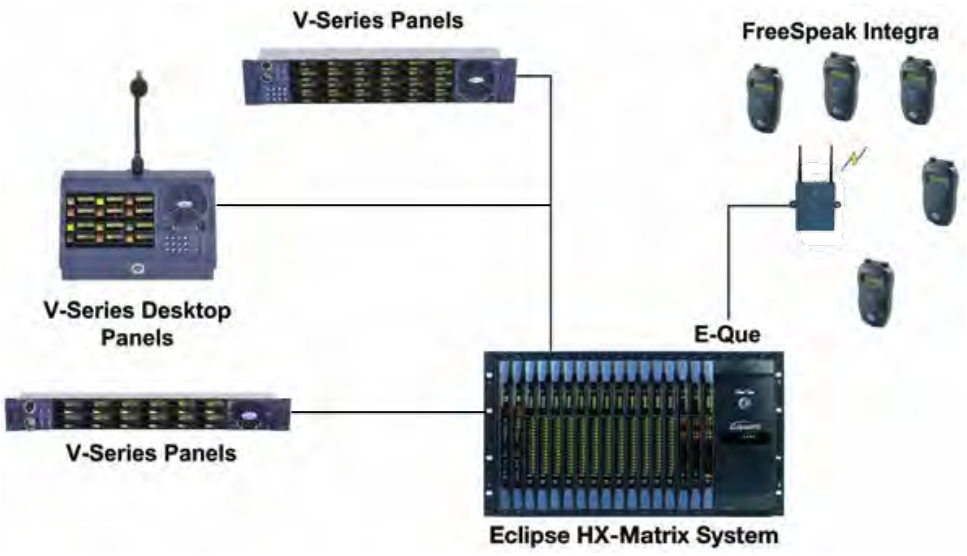
Patented Dynamic Port Allocation technology allows the beltpacks to roam between Active Antennas without breaking connections to the Matrix users.

Standard CAT-5 cabling connects beltpacks to the Matrix via a network of Active Antennas and antenna splitter. Simply add additional Active Antennas to expand number of users.



KEY FEATURES

- Up to 40 users per E-Que card (depending on the environment)
- Up to four E-Que cards can be used in one Matrix (expanding up to 40 Active Antennas per system)
- Up to 800ft (50 to 150m typical) range under good radio frequency conditions – adding more Active Antennas can extend the range
- Cellular Roaming –free roaming between Active Antennas
- Digital encoding keeps calls private
- Quick & easy programming of audio routes from the beltpack via standard software
- Seamlessly integrates with Eclipse HX-Omega, Eclipse HX-Median and Eclipse HX-Delta matrices



BELTPACK-TO-BASE STATION TECHNICAL SPECIFICATIONS

FREESPEAK BASE STATION	
Base-to-Beltpack Frequency Response	100Hz – 7.1kHz
No. of Beltpacks Per Base Station	20
No. of Transceiver/ Antennas Supported by Base, Basic Base	10
No. of Active Antenna Ports	2
PC Programming Port	DB9
Relay Port	DB9
Partyline Intercom A and Intercom B (each)	XLR-3F with XLR-3M loop through, on/off termination switch (via software)
Four-Wire/Matrix Connection	4 RJ-45 (Intercom 3 – 6)
Program Input	XLR-3F, transformer isolated, line-level input
Stage Announce Output	XLR-3M, transformer isolated, line-level output
Front-Panel Headset	4-pin male connector with 2-channel capability and individual talks and listens
Front-Panel Display	254 x 32 dot-graphic VFD
Front-Panel Indicators	2 Talk LEDs for front-panel headset, CH A and CH B party-line enable LEDs, Program Input enable LED, 10 individual antenna LEDs
Base Station Programming/Editing	Push-to-enter rotary encoder
Dimensions	1RU unit, 1.75 x 19.0 x 12.5in (44 x 483 x 312mm) (HxWxD)
Weight	10.8lbs (4.9kg)

BELTPACK	
Audio Bandwidth	100Hz – 7.1KHz (G.722)
No. of Pages	3
No. of Full-Duplex Audio Paths	Up to 6 with individual level control (3 pairs)
Mode of Operation	Full-duplex on all routes
Level/Talk Controls	2 top-mounted push-to-talk rotary encoders
"Page"/Menu Scroll Buttons	2
Enter/Answer-Back Button	1
Frequency Spectrum	1.88GHz – 1.93GHz* DECT Cellular auto-roaming technology
RF Output	200mW Burst, 17mW average**
Range	Up to 800ft (50 – 150m typical) in good radio frequency conditions
Battery	4 AA Alkaline cells Rechargeable: 4 AA Ni-MH cells
Battery Charging	In unit, via external power supply connected to beltpack
Battery Life	8-10 hours with 4 x Ni-MH – also accepts 4 x Alkaline AA cells
Headset Connector	4-pin male, Clear-Com standard
Microphone Type	Electret and Dynamic, selectable in beltpack menu
Microphone Level and Headset Limiter	Selectable in beltpack menu
Headset Limiter	Selectable from beltpack menu
Environmental	-67°F to +158°F (-55°C to +70°C)
Dimensions	Tapered design at largest points approx. 1.5 x 3.5 x 5.75in (38 x 87 x 144mm) (dwh)
Weight	8.8oz (0.25kg) excluding batteries 12.4oz (0.35kg) including batteries

ACTIVE ANTENNA	
Beltpacks Supported per Active Antenna	5
Active Antenna Transmission Range	Up to 800ft (50 – 150m typical) to beltpack (50 to 150m typical)
Active Antenna Output	200mW burst, 80mW average**
Maximum Distance, Base to Antenna Via Transceiver Port	3,200ft (1,000m) on 4-pair CAT-5 or better cable
Maximum Distance, Antenna Powered by Base	975ft (300m) on CAT-5 or better cable
Local Powering	24VDC power supply
Connection to FreeSpeak Base	RJ-45
Antenna Connector Type	Reverse Polarity SMA, two; supplied omnidirectional whip antennas
Mounting	Via integral tabs with holes for screws
Dimensions	1.5 x 5.0 x 6.1 in (38 x 125 x 153mm) (HxWxD)
Weight	14oz (0.4kg)

ACTIVE SPLITTER	
No. of Antennas	5
No. of Splitters per Base	2
Connection Between Base and Splitter	CAT-5 or better cable with RJ-45
Connection Between Splitter and Antennas	CAT-5 or better cable with RJ-45
Powering of Splitter	Locally powered via supplied external power supply
Weight	16oz (0.45kg)

TRANSMISSION METHOD	
Method of RF Operation	Uses two slots per beltpack for wider frequency response
Modulation	QPSK
Frequencies of Operation	from 1.8 – 1.93GHz* (restricted by software)
RF Output	250mW burst, average as new FCC level 2 – 4mW

*Exact frequency range depends upon country.
Japan: 1.893GHz - 1.906GHz
**Japan: 8mW average

INTEGRA INTEGRATED WIRELESS TECHNICAL SPECIFICATIONS

SYSTEM (CELL CONTROLLER CARD, ACTIVE ANTENNA & ANTENNA SPLITTER)	
Frequency Spectrum	1.88GHz – 1.93GHz* DECT Cellular auto-roaming technology
Size	**Cell Controller Card (in Matrix):** Standard 6RU Eurocard (HxWxD) **Active Antenna:** 6.18 x 5.04 x 1.61in (157 x 128 x 41mm) **Antenna Splitter:** 6.18 x 5.04 x 1.61in (157 x 128 x 41mm)
Maximum Beltpacks per Cell Controller	40
Maximum Cell Controller Cards per Matrix	4
Maximum Antenna per Cell Controller Card	10
Connection between Cell Controller Card & Active Antenna	2 x RJ45 (CAT-5 screened cable) up to 4,800ft (1,500m) from matrix
Environmental	-67°F to +158°F (-55°C to +70°C)

BELTPACK	
Audio Bandwidth	100Hz - 7.1KHz (G.722)
No. of Pages	6
Number of Duplex Routes per Beltpack	Up to 12 with individual level control (6 pairs)
Mode of Operation	Full-duplex on all routes
No. of Full-Duplex Audio Paths	Up to 6 with individual level control (3 pairs)
Level/Talk Controls	2 top-mounted push-to-talk rotary encoders
"Page"/Menu Scroll Buttons	2
Enter/Answer-Back Button	1
Frequency Spectrum	1.88GHz – 1.93GHz* DECT Cellular auto-roaming technology
RF Output	200mW Burst, 17mW average**
Range	Up to 800ft (50 – 150m typical) in good radio frequency conditions
Battery	4 AA Alkaline cells, Rechargeable: 4 AA Ni-MH cells
Battery Charging	In unit, via external power supply connected to beltpack
Battery Life	8 - 10 hours with 4 x Ni-MH – also accepts 4 x Alkaline AA cells
Headset Connector	4-pin male, Clear-Com standard
Microphone Type	Electret and Dynamic, selectable in beltpack menu
Microphone Level and Headset Limiter	Selectable in beltpack menu
Headset Limiter	Selectable from beltpack menu
Environmental	-67°F to +158°F (-55°C to +70°C)
Dimensions	Tapered design at largest points approx. 1.5 x 3.5 x 5.75in (38 x 87 x 144mm) (dwh)
Weight	8.8oz (0.25kg) excluding batteries 12.4oz (0.35kg) including batteries

ACTIVE ANTENNA	
Beltpacks Supported per Active Antenna	5
Active Antenna Transmission Range	Up to 800ft (50 – 150m typical) to beltpack
Active Antenna Output	200mW Burst, 80mW average**
Maximum Distance, Base to Antenna via Transceiver Port	3,200ft (1,000m) on 4-pair CAT-5 or better cable
Local Powering	24VDC power supply
Connection to FreeSpeak Base	RJ-45
Antenna Connector Type	Reverse Polarity SMA, two; supplied omnidirectional whip antennas
Mounting	Via integral tabs with holes for screws
Dimensions	1.5 x 5.0 x 6.1in (38 x 125 x 153mm) (HxWxD)
Weight	14oz (0.4kg)

ACTIVE SPLITTER	
No. of Antennas	5
No. of Splitters per Base	2
Connection Between Base and Splitter	CAT-5 or better cable with RJ-45
Connection Between Splitter and Antennas	CAT-5 or better cable with RJ-45
Powering of Splitter	Locally powered via supplied external power supply
Weight	16oz (0.45kg)

TRANSMISSION METHOD	
Method of RF Operation	Uses two slots per beltpack for wider frequency response
Modulation	QPSK
Frequencies of Operation	1.88GHz – 1.93GHz* (restricted by software)
RF Output	250mW burst, average as new FCC level 2 – 4mW

*Exact frequency range depends upon country.
Japan: 1.893GHz - 1.906GHz
**Japan: 8mW average

Top: The IMF-102 interface frame with optional TEL-14 and CCI-22 interfaces
Bottom: The IMF-3 interface frame with various optional interfaces

FEATURES

- Connect digital matrix systems with a host of other communications systems
- Two sizes of interface frames: 3 RU x 11 interfaces and 1 RU x 2 interfaces
- Seamless interfacing with telephone, two-way radio, cameras, party-line intercom, IFB systems, other communications systems and control devices
- Interfaces are compatible with Matrix Plus, MicroMatrix, and other digital intercom systems
- Specialty panels for transformer isolation, interfacing with IFB receivers, and connections between Matrix Plus II and Matrix Plus 3 systems

DESCRIPTION

Clear-Com's sophisticated modular interface system is optimized for use with intercom systems. Interfacing permits Matrix Plus, MicroMatrix™, and other digital intercom systems to connect to and communicate via other types of communications systems.

The modular interfaces are mounted into interface frames, which provide the necessary connectors, communications busses, and power. The IMF-3 frame holds up to 11 modules, and the IMF-102 holds two. The frames also provide the capability for redundant power supply, for fail-safe reliability.

IMF-3 Interface Frame, Rear View

When an interface is connected to a port of the matrix frame, the system recognizes and auto-configures it - easing installation and operations. Interfaces are available to connect telephones, party-line and camera intercoms, two-way radios, and other 4-wire audio circuits. Other interfaces enable control functions via the matrix.

INTERFACE FRAMES

The IMF-3 is a 3-RU interface frame that holds up to 11 modules. Modular rear-mounted connector panels feature two RJ-45 connectors to the matrix ports and two DB-9's attaching the connected devices. The frame is used in conjunction with the PSU-101 rack-mountable power supply, providing power to the enclosed interfaces. A second PSU-101 may be attached for redundancy.

The IMF-102 interface frame combines an internal power supply, connection for a second redundant supply, a rear input/output connector panel, and slots for two modular interfaces — all in a 1-RU chassis. The compact frame offers a practical way to add a small quantity of interfaces to a MicroMatrix, Matrix Plus, or other digital intercom system.

Matrix Plus 3
DIGITAL INTERCOM
by Clear-Com

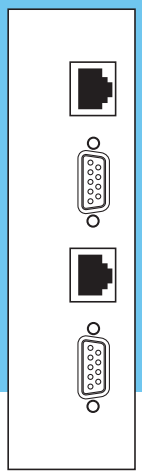
TEL-14

CCI-22

FOR-22

RLY-6

GPI-6


Rear Panel

INTERFACES

TEL-14

The TEL-14 is a two-line, auto-nulling digital hybrid telephone interface module. Onboard DSP processors provide greater than 40-dB of trans-hybrid loss, as well as automatic echo-cancellation for the highest intelligibility and audio quality. Enable or disable auto-answer and auto-disconnect. The interface is perfect for establishing IFB connections between the main intercom and remote production trucks, linking intercom communications between remote systems, and enabling telephone calls directly to or from any intercom station in a Matrix Plus or other system.

CCI-22

The CCI-22 connects two 2-wire full-duplex party-line circuits with the matrix. The interface supports Clear-Com signaling to and from the matrix system, deriving its power from the external party-line circuit. Levels and nulling are completely adjustable. The CCI-22 functions with Clear-Com and other two-wire intercom systems.

FOR-22

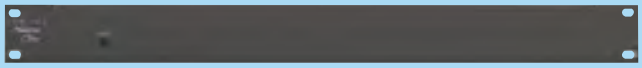
The FOR-22 connects two external 4-wire circuits to the matrix. Camera intercoms, two-way radios, microwave and satellite links, IFB's, and program audio in and out are candidates for the FOR-22. The module provides proper impedance matching, transformer isolation, and level adjustments between systems. It also supports external relay activation and call-sense circuitry.

RLY-6

The RLY-6 provides six fully programmable SPDT (single pole, double throw) relay outputs, to support dedicated switching functions external to the matrix system. The relay interfaces connect to a separate accessory data connector on the matrix card frame, and are programmed and activated through that connector. It is not necessary to use audio I/O ports from the matrix to trigger relays and other logic control devices.

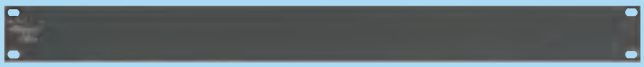
GPI-6

The GPI-6 provides six general-purpose logic inputs into the matrix, allowing external sources to trigger routing changes and other events through the matrix system. Like the RLY-6, this interface is also connected through the separate accessory data connector on the matrix frame. All of the RLY-6 and GPI-6 interfaces in the system are daisy-chained from the accessory connection, and the matrix system will automatically identify both the type and "addresses" of every relay output and logic input. The Matrix Plus system supports a combination of up to 10 GPI-6 and RLY-6 interfaces.

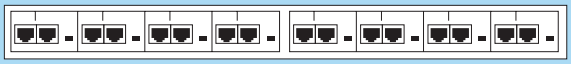


IFB-104

IFB-104 Rear Panel

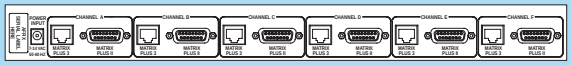


BAL-8



BAL-8 Rear Panel

PIA-32



PIA-32 Rear Panel

PSU-101

PSU-101 Rear Panel

IFB-104 IFB ROUTING PANEL

The IFB-104 is a 1-RU panel that directly connects up to four IFB feeds to the ports of a digital matrix system. Individual or multiple IFB earbuds or headphones may be powered directly from each connected matrix port. Alternately, an intercom power supply may be connected, allowing the use of active personal IFB receivers, such as the Clear-Com TR-50 or TR-532.

The IFB-104 does not require external power to drive its circuitry. Each channel has a rear-mounted wet/dry switch, allowing either direct connection or powering via a party-line intercom power supply. The signal from the matrix port is transformer-coupled to the XLR-connector output.

BAL-8 EIGHT-PORT GROUND ISOLATION INTERFACE

The BAL-8 is a 1-RU interface containing eight 4-pair, transformer-isolated ports. Each port handles two audio signals and two RS-422 data lines. The unit isolates the connection between Matrix Plus 3 ports and peripheral devices such as two-way radios.

Each set of input/output connectors has its own slide switch, allowing the port to be placed into Normal or Interface mode. In normal mode, the data pairs are unaffected, while in interface mode they are connected to indicate to the system software that a direct connection is being made. Each channel has a pair of RJ-45 connectors for input and output.

PIA-32 PERIPHERAL INTERFACE ADAPTER

The PIA-32 is a stand-alone, one-rack-space translator that converts Matrix Plus 3 ports to Matrix Plus II ports. It allows existing Matrix Plus II systems, interfaces, and accessories to be used with Matrix Plus 3 systems without modification. Each unit connects six Matrix Plus II ports, interfaces, or accessories to the Matrix Plus 3 frame.

The PIA-32 translates the different call-signal protocols used by Matrix Plus 3 and II, allowing trunking between systems. It also enables connections between the Matrix Plus 3 frame and the outputs of existing IMF-1 interface frames, and permits interface ID. Further, it enables the connection of third-party telephone interfaces and of the Clear-Com AB-100 On-Air Announcer's Console to Matrix Plus 3 without any modifications.

PSU-101 POWER SUPPLY

The PSU-101 is the power supply for the IMF-3 interface frame. The one-rack-space unit may be connected with a second unit for fully redundant operation. It has both an audible failure alarm and failure relay contacts to activate a remote signal. A single PSU-101 will power a minimum of two interface frames, depending on the type of interfaces and their individual power requirements. Additional power supplies may be added in installations with a large quantity of interfaces, to provide both sufficient power and redundancy.

SPECIFICATIONS

IMF-3 FRAME
Plug-in Module Capacity: 11
Rear Panel Connectors:
(2) 10-pin Jones (for PSU-101 power supply)
To Matrix Frame: (22) RJ-45
(when all interface modules are installed)
Interface I/O: (22) DB9-M
(when all interface modules are installed)
Power Requirements:
200 mA from PSU-101 power supply
Size: 5.25" H x 19" W x 13.75"
(133 x 483 x 345 mm)
Weight: 10 lbs (4.5 Kg)

IMF-102 FRAME
Plug-in Module Capacity: 2
Rear Panel Connectors:
(1) 3-pin EIA (for internal power supply)
(1) 10-pin Jones
(for PSU-101 redundant power supply)
To Matrix Frame: (4) RJ-45
(when all interface modules are installed)
Interface I/O: (4) DB9-M
(when all interface modules are installed)
Power Requirements,
+9 V Analog: 200 mA (frame only)
-9 V Analog: 200 mA (frame only)
AC Requirements: 90 - 250 VAC, 20 W
Size: 1.75" H x 19" W x 13.75" D
(44 x 483 x 345 mm)
Weight: 6.25 lbs (2.8 Kg)

CCI-22 2-WIRE INTERFACE (2 CH)
Frequency Response100 Hz -15 kHz, +0/-3 dB
Impedance:>10K Ohms (bridging)
Audio Level,
Clear-Com or compatible:-15 dBv nominal
Other: -10 dBv nominal
Call Signal Level (Clear-Com or compatible only): 4 -11 VDC
Nulling Capability,
Line Length: 0 - 4,000 feet
Line Impedance:120 - 350 Ohms
Depth of Null: >30 dB, 200 Hz - 8 kHz
Nulling Tone: Via 1/8" phone jack
Power Consumption(maximum each channel):
40 mA @ 20 - 30 VDC
(Power is supplied by external party-line)
Power Requirements:
0 mA from PSU-101 power supply

FOR-22 4-WIRE INTERFACE (2 CH)
Frequency Response20 Hz -15 kHz, +0/-3 dB
Audio Input Level: 0 dBv nominal
Input Impedance:>10K Ohms,
transformer balanced
Audio Output Level,
Nominal: 0 dBv, -15 dBv, or -55 dBv,
jumper selectable
Maximum: +20 dBv
Output Impedance:150 Ohms nominal,
transformer balanced
Call Signal Input: 4 - 50 VDC
Relay: SPDT, 24 VDC @ 1 Amp
Power Requirements:150 mA max from
PSU-101 power supply

TEL-14 TELEPHONE INTERFACE (2 CH) AUDIO
Frequency Response300 Hz - 3.4 kHz
Send Gain Control Range: +/-12 dB
Receive Gain Control Range: +/-12 dB
Ring Detect Sensitivity: Operates with most international telephone ring signal standards.
Auto-Mode Levels:-12 dBv on intercom line for -9 dBm on telephone line; -27 dBm on telephone line for -12 dBv on intercom line.

TELEPHONE DISCONNECT
Dial Tone: 350 Hz + 440 Hz, continuous
Busy Tone: 480 Hz + 620 Hz,
0.5 sec on / 0.5 sec off
Reorder Tone: 480 Hz + 620 Hz,
0.25 sec on / 0.25 sec off
Loop Current Interruption: >5 ms
DC Isolation: >10M Ohms between each telephone line and the IMF interface frame.

POWER REQUIREMENTS
Supplied by the PSU-101 power supply
Voltage Required:Between +/-8 and +/-12 Volts DC unregulated
Current Required: +370 mA /-130 mA

CONNECTORS (VIA IMF FRAME)
To Matrix Frame: (2) RJ-45
DB-9M Connector:
(2) telephone line connections
(2) for relay contacts
Relay Contacts: Type "A1", "Dry", normally open when TEL-14 is on-hook

CONTROLS & INDICATORS (2 EACH)
Hook switch and LED; Send Volume control and LED; Receive Volume control; Auto Gain switch and LED; Auto Answer switch and LED; Auto Nulling reset switch.

SIZE & WEIGHT
Size: 5.0625"H x 1.375"W x 9.16"D
(129 x 35 x 233 mm)
Weight: 0.78 lbs (0.32 Kg)

RLY-6 RELAY INTERFACE
Relays: Six SPDT 24 VDC @ 1 Amp
Power Requirements:150 mA max from
PSU-101 power supply

GPI-6
Input Type: Opto-isolated 4 - 30 DC or AC
Power Requirements:0 mA from PSU-101
power supply

IFB-104 IFB ROUTING PANEL
Indicators: "Power-on" LED

CONNECTORS
Program Input: (4) 3-pin XLR female
To Matrix Frame: (4) RJ-45
Talent: (4) 3-pin XLR male
DC Power: (1) 3-pin XLR male
(1) 3-pin XLR female

PROGRAM INPUT
Type: Transformer isolated
Impedance:600 Ohms bridging
Level: 0 dBv

HEADPHONE TALENT RECEIVER OUTPUTS
Impedance:600K Ohms transformer balanced
Power: 1 mW into 600 Ohms

LINE INPUT
(2-PAIR TALK TO MATRIX)
Type: Transformer balanced
Impedance:600K Ohms
Level: 0 dBv nominal
Frequency Response100 Hz-15 kHz, +/-2 dB

SIZE & WEIGHT
Size: 1.75" H x 19" W x 2" D
(44 x 483 x 51 mm)
Weight: 1.8 lb. (.82 Kg)

BAL-8 TRANSFORMER-BALANCED PANEL
Connectors,
Output: (8) RJ-45 (to interfaces)
Input: (8) RJ-45 (from Matrix)
Indicators: "Power-on" LED
Isolation: All balanced audio pairs (2 per port connection) are transformer isolated
Frequency Response100 Hz - 15 kHz
Max Level: +10 dBm
Size: 1.75" H x 19" W x 2" D
(44 x 483 x 51 mm)
Weight: 5 lb. (2.3 Kg)

PIA-32 INTERFACE ADAPTER
Connectors,
Output: (6) RJ-45 (to the Matrix Plus 3 frame)
Input: (6) DB-15F
Indicators: "Power-on" LED
Electrical Requirements:90 to 260 VAC,
50 - 60 Hz @ 12 watts (in-line power supply)
Size: 1.75" H x 19" W x 6.5" D
(44 x 483 x 165 mm)
Weight: 5 lb. (2.3 Kg)

PSU-101 POWER SUPPLY
Two 9-volt switching supplies with audible failure alarm
Output Current: 3 Amps
Indicators: 2 power supply LEDs
Rear Panel Connectors,
Alarm Out: SPST relay @ 1 amp DC rating
Mains Connector: IEC 3-pin connector
AC Power Input,
Voltage:90 - 260 VAC
Power: 125 Volt-Amps maximum
Frequency:50 - 60 Hz
Size: 1.75" H x 19" W x 7.75" D
(44 x 483 x 197 mm)
Weight: 4.5 lbs (2 Kg)

All specifications are subject to change without notice.

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